

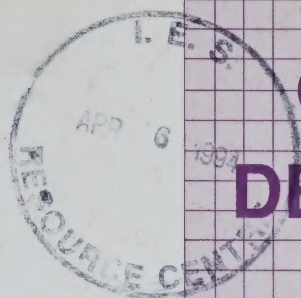
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SUSTAINABLE ECONOMIC GROWTH & DEVELOPMENT. IMPLICATIONS
FOR GOVERNANCE IN THE ASIA-PACIFIC REGION. 1992.

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Canberra Bulletin of
Public Administration



ECOLOGICALLY SUSTAINABLE DEVELOPMENT

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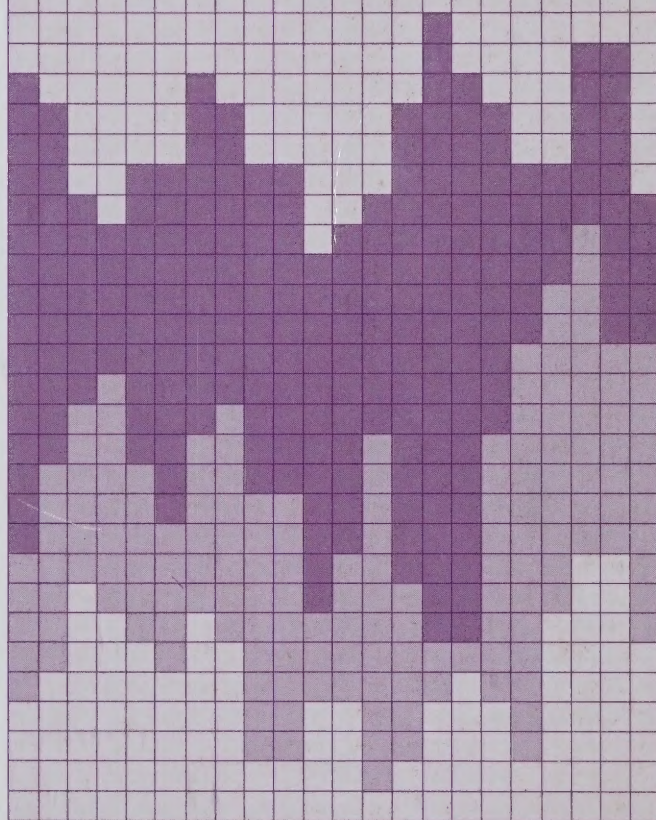
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Proceedings of the
RIPAA (ACT Division)
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SUSTAINABLE ECONOMIC GROWTH & DEVELOPMENT

Implications for Governance in the Asia-Pacific Region



**Papers from the Fourth International Workshop
on Governance in the Asia-Pacific Region**

Canberra • 10-12 December 1991

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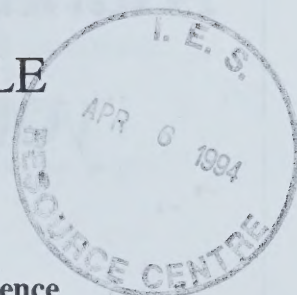
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ECOLOGICALLY SUSTAINABLE DEVELOPMENT



Proceedings of RIPAA (ACT Division) National Conference

Canberra • 9 December 1991

Papers prepared
for International Workshop on

SUSTAINABLE ECONOMIC GROWTH AND DEVELOPMENT

IMPLICATIONS FOR GOVERNANCE IN THE ASIA-PACIFIC REGION

Organised by Canadian Institute for Research on Public Policy

Canberra • 10-12 December 1991



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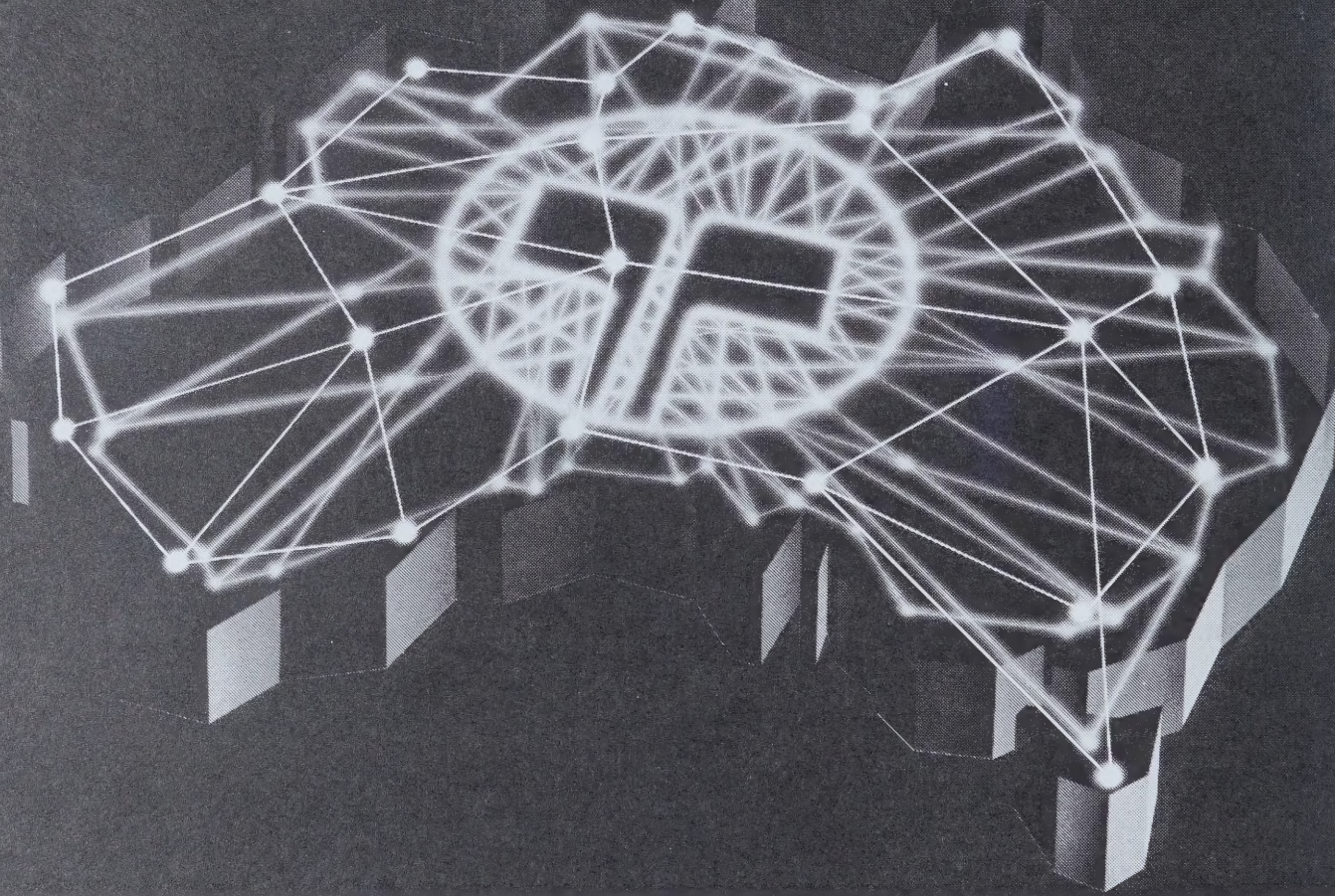
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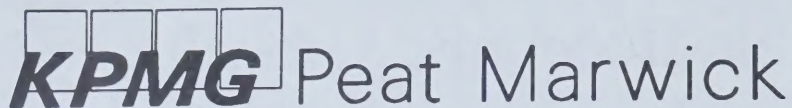


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In Australia -

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- Australian International Development Assistance Bureau
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- Department of Finance
- Department of Foreign Affairs and Trade
- Department of Industry, Technology and Commerce
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- Department of the Senate
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- Federalism Research Centre, Australian National University
- KPMG Peat Marwick
- Office of the Economic Planning Advisory Council
- Resource Assessment Commission
- The Treasury

In Canada -

- Government of British Columbia
- Canada - ASEAN Centre

PREFACE

In 1986 Professor John Langford travelled the Asia-Pacific region visiting research and public policy organisations to propose, on behalf of the Canadian Institute for Research on Public Policy, a series of workshops to address governmental and public policy issues of common interest throughout the region. His idea was enthusiastically taken up and in June 1987 the first workshop attended by representatives of countries in the region met at the offices of IRPP in Victoria, British Columbia, to discuss the general theme of governance.

The following year a second workshop on the topic of Economic Policy-making in the Asia-Pacific region convened in Bangkok, and was co-hosted by the Thailand Development Research Institute. A year and a half later, in Kuala Lumpur, a third workshop was held on the subject of Governance and Think Tanks. The co-host on this occasion was the Institute for Strategic and International Studies, Malaysia.

In December 1991 the workshop reconvened, for a fourth time, in Canberra, Australia's national capital, for discussion of the theme: "Sustainable Economic Growth and Development: Implications for Governance in the Asia-Pacific Region." The co-host was the Royal Institute of Public Administration Australia (ACT Division) which has, throughout, arranged and funded Australian participation in the series.

On the day preceding commencement of the workshop the RIPAA organised a public conference on Ecologically Sustainable Development at which several participants at the workshop were speakers.

This special number of the *Canberra Bulletin of Public Administration*, jointly published by the two Institutes, combines the papers from the conference and the workshop.

The December meetings in Canberra were fortuitous on two grounds. In Australia, an intensive examination of ecologically sustainable development as it affected nine industry sectors had just been completed and the reports of the various groups published. The RIPAA Conference provided the first occasion for public discussion of these reports and the process from which they had emerged.

Coming six months before the world summit in Rio de Janeiro, the workshop furnished an important forum in which aspects of some of the significant issues it will be addressing could be considered with a regional focus.

The contents of this *CBPA* combine extensive coverage of the issues in a manner which also gives some of the character of debate especially in Australia.

It is unlikely that this publication will be the last by either Institute on the subject of ecologically sustainable development. But in the context of the Rio de Janeiro summit, it brings before an influential readership a useful survey of latest developments.

Elsewhere in this issue our respective Institutes record their acknowledgements of the valuable support of numerous bodies which made the Canberra workshop possible. We simply add our thanks to them for their support.

We also record our gratitude to those in the two Institutes who shouldered the organisational and administrative tasks. As at previous workshops John Langford and Lorne Brownsey superintended the program and led the discussions with enviable flair. Jenny Kelly and Kathy Malcolm, respectively Executive Director and Administrative Officer of RIPAA (ACT Division), showed equal flair in overseeing the smooth workings of both the conference and the workshop.

Monique Jerome-Forget
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Environmental Issues are a Very Real Priority

John Taylor*

It is with considerable pleasure that I welcome you to this National Conference on Ecologically Sustainable Development. This is the last public event of the Institute's program for 1991 but we believe that it is one of the most important. Issues of economic growth, the environment and sustainable development are very much at the heart of public policy making in Australia today. It is the Government's policy that environmental impact is given due consideration in all developmental proposals that it considers.

Just two decades ago an Office of the Environment was created in the then Department of Aboriginals, the Arts & the Environment. It might have been thought that it was little realised by most administrators at the time that we were seeing the start of government recognition of a range of issues which would progressively assume major significance electorally and increasingly preoccupy governments across large parts of the policy spectrum. Nothing could be further from the truth. The reality at the time was concern over whether the genie could ever be put back in the bottle once the stopper was removed.

In very recent times Australia has seen a major prime ministerial statement on the environment, major projects stopped for environmental or maybe politico-pseudo-environmental reasons, governments in the State of Tasmania are virtually determined by their handling of environmental issues, and new institutions created to assist in examination and analysis of specific cases where development/environmental issues are at stake. This concern is not that of Australia alone. As is well known, many countries are now preparing for a world environment summit in Rio de Janeiro in 1992.

This Institute Conference comes at a time when the final reports of task forces on ecologically sustainable development in nine industry sectors have just been published. This present Conference is being held in conjunction with the Fourth International Workshop on Governance in the Asia-Pacific region, organised under the auspices of the Canadian Institute for Research on Public Policy. The theme of that workshop is "Sustainable and Equitable Economic Growth: Implications for Governance in the Asia-Pacific Region", an extremely important topic.

As host of the workshop, the RAIPA is delighted to be able to welcome to Australia and to Canberra, and to this Conference, participants from Korea, Japan, Thailand, Papua New Guinea, Taiwan, Malaysia, Singapore, Hong Kong, as well as the Philippines, New Zealand and Canada.

A number of the workshop participants will be addressing the Conference today.

The Conference bears witness to the self-evident worldwide character of environmental issues — self-evident because if one had been watching television about a week ago, the satellite image showing the breaking up of the Antarctic hole in the ozone layer so that Canberra is more at risk clearly showed increased risk to New Zealand and Latin America. The significance of environmental issues is clearly revealed in this Institute's own program, and, I might add, within my own organisation's audit program. Environmental issues are a very real priority.

At the same time it is obvious and important to remember our responsibility to foster a healthy, prosperous economy, thereby providing the community with the opportunity to enjoy a good standard of living. Through a more informed and sophisticated debate the Institute is endeavouring to help identify some of the key parameters which will guide ecologically sustainable development. In 1990 we had a two-day conference on development and the environment. One of the issues of the *Canberra Bulletin of Public Administration* (No. 62, October 1990) covered that conference.

We seek to contribute constructively to the informed discussion of the very diverse issues to which consideration of the concept gives rise. We have only been able to stage this Conference because of the generous support of a number of sponsors — the ANZ Banking Group, AIDAB, the Department of the Arts, Sport, the Environment, Tourism & Territories, Department of Finance, Department of Foreign Affairs & Trade, Department of Industry, Technology & Commerce, Department of Primary Industries & Energy, Department of the Senate, Department of Transport & Communications, KPMG Peat Marwick, Office of the Economic Planning Advisory Council, Resource Assessment Commission, the Treasury, and the Federalism Research Centre of the Australian National University. We also had considerable assistance from the Department of the Prime Minister & Cabinet.

This support, and the speed and graciousness with which it was offered, illustrates the justifiable concern felt by the sponsors. The Institute is not unaware of the passions, emotions, commitments and politics which have played, and will continue to play, so strong a role in how decisions are made in this area. Our role is to allow the interests to be ventilated. We do not expect today's proceedings necessarily to be as tame or as cool as our normal proceedings.

It is our expectation, however, that any emotion and passion generated here will be accompanied by analysis and by explanation of the factors that lie behind what may be the forceful expression of strongly held views.

* John Taylor, AO, Auditor-General for Australia, was President, RAIPA (ACT Division), 1990-92. Text of introductory address, National Conference on Ecologically Sustainable Development, Lakeside Hotel, Canberra, 9 December 1991.

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Ecologically Sustainable Development

IMPLICATIONS FOR THE POLICY PROCESS

Stuart Harris*

Over the hundred years from 1900 to the year 2000, the world's population will have increased from 1.6 billion to 6 billion people, economic activity will have increased by a factor of over twenty, fossil fuel use will have increased well over thirty times, and industrial production over 50 fold. Most of this growth will have occurred in the second half of the century.

These changes have been associated with massive advances in economic development and enormous gains in human welfare, even if the distribution of those gains has clearly favoured the developed countries. They have also caused major environmental problems globally. Without reminding ourselves constantly of the magnitudes involved, a "business as usual" pattern of thought and behaviour may be too easily adopted.

For various reasons, business as usual will not be possible in the future. The world population has doubled in the last half century. It will double again in the first half of the next century. It may keep growing after that before it stabilises. A doubling of the global population in the next fifty years, and the achievement for the global population of an improved, but still modest, average standard of living would imply a 5 to 10 fold increase in economic activity with its consequent demand for natural resources — including the environmental resources used as inputs to economic growth or as the depository of the world's wastes.¹ The Brundtland Report, among others, has said that, in global terms, the existing pattern of economic growth is unsustainable.

Australia, perhaps even more than Canada, has so far been substantially isolated from many of the problems of global environmental deterioration. Some of the worst problems of desertification, water pollution, acid rain, deforestation and the like have not been substantially experienced here. Nevertheless, Australia has major problems of soil degradation, deteriorating water quality, the loss of natural animal and plant species, and some forms of waste disposal. Moreover, Australia cannot avoid the impacts of global environmental problems such as ozone layer depletion, and global climate change. These various pressures are likely to increase in the future.

The Brundtland Report articulated a variety of international environmental concerns. Unlike the Stockholm Conference which seemed to see the environment as a constraint on economic development, the Brundtland Report saw the

environment as an essential accompaniment to economic development. It was therefore widely welcomed. It also countered the assumption that economic development and the environment were opposed to each other.

It was partly in response to the international concerns, partly in response to a growing awareness of these problems in the Australian community and, as well, a recognition that a piecemeal approach provided an increasingly unsatisfactory policy approach, that led Australian Governments — Commonwealth and States — to establish the ecologically sustainable development, or ESD, process. The aim of that process was to develop for governments and industry an agreed strategy for moving towards sustainable development in Australia.

Australia, perhaps even more than Canada, has so far been substantially isolated from many of the problems of global environmental deterioration. . . .

Nevertheless, Australia has major problems of soil degradation, deteriorating water quality, the loss of natural animal and plant species, and some forms of waste disposal. Moreover, Australia cannot avoid the impacts of global environmental problems such as ozone layer depletion, and global climate change.

The first stage of that process has now been completed. The reports of the nine sectoral groups were published in November 1991 and the Reports on Intersectoral Issues and on the Greenhouse Problem were released in February 1992.² What has come out of the ESD process is an acceptance that not only does the economy affect the environment but the economy depends upon the integrity of the environment. Moreover, there is a general acceptance that the environment is damaged most in a context of economic stress. In other words the economy and the environment are essentially interrelated in practice.

This paper looks at the efforts to make the concept of sustainable development operational. Usually, for that purpose, one would start by setting out a precise definition of the concept. Clement Attlee was once asked how he would define an elephant. His response was that he could not do so but he would know one when he saw one. There is something analogous about defining sustainable development. In the case of sustainable development, however, we are more likely to know it when we do not see it. We become more readily aware of an unsustainable situation when environmental damage is apparent. The ESD working

* Professor Stuart Harris, Professor of International Relations, Research School of Pacific Studies, Australian National University, was Secretary to the Department of Foreign Affairs from 1984 to 1988 (Foreign Affairs & Trade from 1987). He was Chair of three of the working groups on ecologically sustainable development. Keynote address to RAIPA (ACT Division) National Conference on Ecologically Sustainable Development, Lakeside Hotel, Canberra, 9 December 1991.

groups have not been particularly precise in their definitions of sustainable development and it has inevitably remained a somewhat slippery concept.

Many will be aware of the Brundtland definition of sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Some will be less familiar with the definition of that born-again "greenie", Mrs Thatcher, who said that "no generation has a freehold on the earth. All we have is a life tenancy — with full repairing lease".³

Both definitions, of course, were global and, to start to make them operational, the ESD process had to bring them into a national context. Although neither were operational, that of Mrs Thatcher provides a more operational framework. She seemed to recognise, moreover, that the government needed to spell out the terms of the life tenancy.

One step towards making the concept operational was to bring the issues down from the level of abstract principle to their practical contexts. This was the special value of the sectoral character of the ESD process. Nevertheless, even then, the problem with making the concept operational was not totally resolved. We were able to specify certain requirements that sustainable development has to meet in principle. These include such things as ensuring that we pass onto future generations a capital stock equivalent to that we received; the need to value environmental resources correctly incorporating environmental, as well as economic, costs in prices; and dealing cautiously with risk and uncertainty.

But in many cases what constitutes sustainable development in a specific context can often be determined at best only in that context. Although this sounds administratively untidy, let us keep in mind that other vital but ill-defined concepts such as democracy, human rights and occupational safety remain powerful policy influences. Moreover, Australia has been assessing its risks from other "public bads" such as threats to its security and law and order for a long time. Over that time, it has successfully devised defence or policing policies without undue concern at the imprecision of the targetted objective.

What is clear is that with our present knowledge — and perhaps at no time — complete accuracy will not be possible. Given this, the problem of finding effective mechanisms — incentives or regulations — will also be large. Optimising across the range of environmental as well as economic impacts presents major problems.

Sustainable development is in that sense a frame of mind and a criterion against which things need to be assessed rather than a precise standard. Those assessments are likely to be based on judgments, including political judgments, for some time to come. Obviously we can go a long way towards reducing the judgmental elements and developing mechanisms for measuring policy progress. We have a long way to go, however, practically and conceptually before judgments can be largely eliminated. In some cases, fundamental values are likely to remain central and will impose a continuing need for political adjudication. Cases in point are the siting of dams for hydro-electricity generation or economic development in or near wilderness areas.

Concerns for future generations were central to the sustainable development definitions of Mrs Brundtland and Mrs Thatcher as they have been to the ESD process. While what this means in practice is not easily specified, essentially it implies that Australia has to learn how to live on the income from its resources. This requires, first, using the income gained by the community as a whole from the exploitation of its depletable resources to provide an income for future generations and, second, giving particular weight to maintaining its renewable environmental capital. The framework for deciding how to do this, and for resolving the conflicts between economic and environmental impacts where they arise has clearly been inadequate in the past. This is apparent from the continuing, and in some cases, increasing confrontations in such decision-making, particularly in the forestry and mining sectors.

Turning this principle into specific policy guidelines, however, is not simple. The valuation of future costs and benefits is central to doing so, but how to do that has been debated by economists for a long time. That debate has not taken us very far towards finding applicable policy principles.⁴ Small differences in the interest or discount rate — which reflects the general belief that normally jam today is worth more than jam tomorrow — can have a major influence on the value of costs and benefits over a long period of years.

What is clear is that in making judgments about the distribution of income and capital between present and future generations, ethical or moral judgments have to be introduced explicitly. And in making these judgments, many uncertainties remain. One question, for example, is whether future generations will be better off than we, the present generation, will be. We would expect our descendants to gain from economic progress but this could be offset by environmental deterioration — and the extent of that deterioration is what much of the debate on ESD is largely about. Sustainable development obviously poses questions about the appropriate distribution of income between the present and the future generation. It also faces us, however, with other distributional issues.

A major reason for concerns about the environment is that many of our environmental resources fall outside the normal market mechanism and have previously been free or under-priced. We accept that if those resources are not to be overused, we will have to attach values to them to reflect their relative and increasing scarcity. We also accept that those valuations will have to be brought into market decisions or in other decision-making processes. But moving towards sustainable development in this way involves asking people or enterprises to pay for things they were previously getting for free or for which they were being subsidised by other groups in the community.

Not surprisingly, therefore, changes to eliminate an environmental subsidy to a product, or a service, are not always welcome. In particular, they are not welcome to those on low incomes if water or energy costs are judged not to be meeting their full economic and social costs. Moreover, nationally, as well as internationally, the idea of today's poor having to pay to ensure the future of what could be tomorrow's rich is not wholly welcome. Such changes are similarly not welcome to industrial producers if their competitiveness is affected — internationally or frequently

against the more efficient firms in their industry who are often already meeting these costs.

Yet, in broad terms, sustainable development imposes no new costs. The environmental costs are already being incurred. Someone is bearing them now or will bear them in generations to come. So the argument often put to the working groups, that Australia could not afford the costs ESD involved, holds at best only in terms of the costs of adjusting to a sustainable development position.

In the case of traditional environmental pollution, the issues of principle in making a sustainable development policy operational are not complex and are not substantially in dispute. Much has already been done to address these problems and, because of existing governmental standards or regulations, the leading firms and enterprises in many major industries already incorporate many direct environmental costs of their activities in the pricing of their products. Much of the debate centres on the pace of the transition and the forms of economic instruments and regulations to be applied. The concept of polluter pays, which largely encompasses this approach, although not always easy to apply in practice, is generally accepted in principle.

A more complex and less familiar area in which to develop an operational policy is that concerned with environmental protection of ecological systems and genetic species that make up biodiversity. Yet it is particularly relevant to Australia because Australia has a higher level of remaining wilderness and biodiversity than most developed countries. Hence the term ecologically sustainable development is not without a special logic in Australia.

Protection of biodiversity differs from that of other environmental factors in a number of respects. In particular, it raises the question of the conservation of natural- versus human-made capital.⁵

Habitat protection and species conservation issues are likely to become more, rather than less, important in the future. On the one hand, international demand for the products of the industries most affected — mining, forestry, tourism and, perhaps, agriculture — will grow substantially. On the other hand, the demand for biodiversity will also grow, while its supply will diminish.

In those circumstances, the policy problem is how to enable economic development to proceed efficiently while at the same time providing effective protection to ecological resources. This puts great weight on finding a process for deciding these issues without the costly and potentially divisive confrontations which have been the pattern in the past.

There is an acceptance by all major stakeholders that we should set aside representative samples of the range of Australia's biodiversity. Nevertheless, we have serious gaps in the basic information from which we could develop specific criteria against which to make many of the needed policy judgments. Part of the problem is resolvable through mechanisms that offer such things as a better information base, improved understanding, more effective consultation procedures and enhanced technology. Many differences will

not be resolvable, however, through such methods. Value differences will remain that can only be resolved politically — and that process could easily remain confrontational.

In the biodiversity context, conservationists emphasise the need to deal cautiously with risk and uncertainty. This is because we do not know a lot about our ecological resources and the kind of damage we might impose on them by particular actions. Yet decision criteria for risk and uncertainty are complex in theory and even more complex in practice. Various decision frameworks have been suggested including applying a safety margin in evaluation decisions such that where there is a risk of species extinction or other forms of irreversibility, economic development should not proceed unless the social costs of not doing so are unacceptably large.⁶ To the argument that this may seem to give a bias to conservation benefits the counter argument is that this would offset the bias towards economic development that the "misplaced concreteness" of measurable monetary costs currently gives.

Yet, in broad terms, sustainable development imposes no new costs. The environmental costs are already being incurred. Someone is bearing them now or will bear them in generations to come. So the argument often put to the working groups, that Australia could not afford the costs ESD involved, holds at best only in terms of the costs of adjusting to a sustainable development position.

A highly salient example of risk and uncertainty is that of the potential threat of global climate change. For those of us who are not experts, questions of two kinds arise out of this issue. First, is there a real risk? The response to that must be that it would be hard, in the light of the international consensus, not to accept that a real risk exists. There are still some who may believe, and certainly hope, that the greenhouse problem will go away — that it is this decade's worry, just as running out of resources was the worry of the last decade. Certainly, as we are repeatedly told, many previous predictions of dire consequences were not borne out in practice. Yet to extrapolate that experience forward and to predict mechanically that current or future projections are equally wrong, as those opposing action on ozone did as late as last year (1990), commits precisely the same logical error.

The world's scientists accept that there is a high probability that the world's temperature will rise. There is much less certainty on how fast and how far those temperature increases will go, what the regional impacts will be and what other effects might be associated with them, such as increased climatic instability. The prudent response to a risk of any magnitude is to take out insurance. Just what insurance, and how much, is where the central debate should now rest.

A second question concerns what the rest of the world thinks about the possibilities of global climate change. In many respects that is more important than what Australia itself thinks about the issue. Australian governments and industries will have to respond to decisions that will be taken by the major energy using countries — whether through international agreements, unilateral government actions or market developments; and it does not matter whether those decisions are taken in response to rational analyses, or to emotional responses to the next drought or the next heatwave.

The need is to avoid decisions being made in isolation from their wider impacts. Yet a large proportion of government agencies have mandates to meet a single social or economic objective or at most a few such objectives. The reality is that for most decisions we have no way of coping with that kind of problem, and a major transformation would be necessary to achieve one that involved integration of decision-making between economic and environmental decisions, across the range of sectors affected, and more effectively between local, State and national governments.

Some form of international agreement on global climate change — at least of a framework kind — is likely next year and in the next few years something a little firmer is probable, with the firmness of the commitments being partly determined by where the science takes us. Already, however, some countries — Sweden, Norway, Finland, Denmark and the Netherlands — have imposed carbon or energy taxes. The European Commission has proposed a carbon/energy tax and current expectations are that some form of such a tax will be accepted when it is considered in due course.⁷

These developments have not yet had major impacts on Australia. Their significance can easily be dismissed, and they are being so dismissed. Yet they are important precedents for paths to be followed in the future. They already affect not just our coal export price levels but apparently also in some cases our relative competitiveness. We may doubt how far insurance, other than adaptive insurance, by Australia makes sense except insofar as we take it out in concert with the international community. Insuring against the risks involved in other countries' actions would, however, be prudent.

So far, I have covered some of the issues that have arisen in trying to make the idea of sustainable development operational. More generally, however, it is important to see ESD as a process which is just the beginning of a new approach to decision-making in government and industry. For this reason, emphasis has been placed on the decision-making processes themselves.

The ESD reports have emphasised that to achieve the necessary changes that sustainable development requires in industry, government and, ultimately, consumer decision-making, different decision-making processes are necessary. To achieve that, however, we need to change attitudes — or alter values — first.

We have stressed in our reports the importance of integrating decision-making on economic and environmental questions. To be effective, however, such integration will require decision-makers to accept the need to achieve a proper balance of economic and environmental values. While that can at best be only imprecise for the reasons given, it does mean accepting that the environment can no longer be treated as a free good but has to be analysed in the same way as other resources. Among the important elements of that analysis is an understanding of such factors as the likelihood that technical change will increase the world's capacity to produce human-made, but not environmental, goods and services, so that the value of natural environments will increase over time; an understanding that the likely response as material incomes rise is an increased demand for environmental goods; and a recognition of the growing importance of environmental resources in Australia's case because of increasing recreational and tourist demands. There is also a need to keep in mind the problems of misplaced concreteness of measurable costs — that costs are no less real because we cannot easily measure them — to which I referred earlier.

It is easy, but mistaken, to underestimate the subtle significance of other attitudinal aspects. For example, an important debate over many years among economists has been about the importance of the spillover effects (or externalities) of economic activities on, among other things, the environment. Since it has become apparent that externalities are becoming important, the debate has now turned to whether government intervention would help, with an implication that proof is needed to that effect before any action should be taken. Obviously, the effectiveness of decision-making on sustainable development will require, first, a recognition by government decision-makers of the spillover effects of their decisions. Just as important, however, a decision framework will be needed that can respond to them. It is salutary to remind ourselves of what historically appeared perfectly rational economic decisions in dealing with Irish Famine relief — which limited aid to the starving because of worries about the market disincentives that aid to the hungry would offer expressed in terms that would sound extremely comfortable to economic dries in the 1990s. This approach ignored externalities which imposed massive external costs then and, of course, they remain large today, nearly 150 years later.⁸

Decisions on what appear rational economic grounds, such as reducing bus or train services because a particular service is not covering its internal costs, are consistent with the "commercial" approach now seen as appropriate, but are not consistent with true economic costs, despite the common reference to full cost or user pays pricing principles. Such decisions may have very large social costs to the community as a whole through the extra provision of roads, traffic congestion, and CO₂ and other emissions.

The need is to avoid decisions being made in isolation from their wider impacts. Yet a large proportion of government agencies have mandates to meet a single social or

economic objective or at most a few such objectives. The reality is that for most decisions we have no way of coping with that kind of problem, and a major transformation would be necessary to achieve one that involved integration of decision-making between economic and environmental decisions, across the range of sectors affected, and more effectively between local, State and national governments. Ultimately it will require a much broader management of development patterns as a whole. One step on the way to gain greater precision would be to insist on an explicit and public statement of the assumptions being made about externalities in any economic or social decision-making context.

It is also not easy to answer those who ask whether we are not taking too pure an approach to the use of the taxation system to provide incentives for environmental improvement. The heavily ideological support for market mechanisms in the United States has not stopped the United States government using the tax system more extensively as a support for their "no regrets" responses to the global warming problem, and tax incentives are common in Europe for related purposes. We are abjured not to use the taxation system to provide incentives or disincentives on the grounds that this will distort resource allocation efficiency. Yet, apart from significant doubts about that efficiency on other economic grounds, in the absence of proper valuation and appropriate allowance for environmental impacts, the taxation system must itself already be much more distorted than commonly admitted.

Decision-making in a sustainable development context will therefore be substantially more complex in the sense that, even if everything is not related to everything else, many more things are related to many more things. In that context, a mechanism is needed for broadening decision-makers' horizons and time dimensions. A great deal more information will be needed — and some of it ultimately supplied — but we still have to find effective instruments for measuring change and assessing progress in sustainable development. Market prices will commonly not be an adequate guide for decision-making but quantitative alternatives will often not be available. Resistance to change will be great — particularly given the rent seeking character of much of Australia's economic behaviour. Yet such resistance to change may itself be costly.

The ESD process has been more a supply side than a demand side process. Its emphasis on economic sectors which, apart from one report dealing with energy use, are inevitably largely production oriented, has ensured this. As a consequence, the sectoral reports have not dealt in detail with issues such as the acquisitiveness of human nature and the arbitrariness of monetary measures of human welfare.

Several of the reports note that although the idea of the throw away society is often associated with particular industries, especially manufacturing, ultimately the causal influence is the consumer. A concern of the conservation movement for a long time has been the need for changes in consumer demand patterns. They believe that existing consumer tastes and lifestyles are unsustainable (or sustainable only with unacceptable social costs). Economists and others argue the high social value of consumer preference and implicitly perhaps, that people's choices are reasonably rational expressions of what they think makes them better off. Many observers, however, query the extent to which

those choices are judgments freely made by consumers, rather than resulting substantially from education, advertising and other social pressures within the system, bearing little connection to what constitutes an improvement in the human condition.

With any significant economic change, lifestyles change irrespective of decisions to influence such change. Low cost energy, particularly low cost transport fuels, changed the lifestyles of modern western societies and did so largely unconsciously. If, as seems probable, energy costs rise in the future, lifestyles will change again, and this fluidity and changing nature of lifestyles is often ignored.

Much existing policy assumes implicitly that existing community attitudes and values — mirrored in lifestyles — will not change substantially. In this sense, a clearer understanding of the values enshrined in existing policies, and the factors influencing them, is important to community decision-making. Yet tastes and preferences reflect needs and wants which are based on the social framework and they are in principle changeable. The difficult issue relates to the process of changing. One can accept that existing values are not completely freely determined values and indeed that preference formation is often perverse. Most would see value in influencing consumer attitudes through education, information and persuasion. Rational and public discussion can lead to changes in wants and preferences, and some political theorists have argued that the central concern of politics should be the transformation of wants and preferences through public discussion of the public good. As well as some in principle flaws in this argument,⁹ the question does arise of how far education, information provision and persuasion can be taken consistently with democratic processes.

For this reason the use of economic instruments is especially important, not just as a means for ensuring rational use of environmental resources by industry and as a means of capturing the wide range of interrelated economic and environmental issues, but also as an influence on consumer behaviour. It is significant, therefore, that the ESD debate is firmly centred in an economic framework. This is a major advance arising from the ESD process. Obviously we need to get the economic framework broadly right but for reasons I have elaborated, economics often cannot give clear answers. Moreover, given the public goods nature of many environmental resources, there are limits to the extent to which costs can be internalised to particular economic activities.

Getting the economics right does mean accepting the market's limitations, however, including the implications of the major spillover effects of market operations. In particular, it implies seeing the world as a closed economic system in which the economy and the environment are related in a circular way rather than assuming as in the past that the relationship is linear.

While it is vital to use the market as much as is possible, sustainable development implies a more focussed role for governments both as a reflection of political attitudes and in its instrumental or machinery role. To bring environmental resources within the compass of the market or into decision-making requires governments to be involved. Governments are already involved, of course, because they set the framework within which markets operate through such

things as the laws of property and of contracts and through the taxation system. Nationally, governments also set regulations, standards or charges — and commonly a mix of both — as guidelines within which the market will have to work. Whether that involves a significant bureaucratic presence depends upon the methods used — adjusting the market framework need not — and upon the responses and attitudes of industry and consumers. The ideal would be self-regulation, but self-regulation that is accepted by the good citizens but allows for free riders would not be good for the sustainability of development, for decision-making efficiency, nor for the good citizens themselves.

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Often, as with climate change, governments will need to act while scientific uncertainty remains. It will require substantial resources to aid developing countries as well as to adapt domestic processes in developed countries. It will call for an innovative approach to policy thinking by all sectors of the community and to the difficult task of mobilising domestic or public opinion to support policies which will inevitably have to accept short-term costs to gain long-term benefits. Above all, not since global security issues — and perhaps not even then — have we seen such a need for collective international action.

Internationally, although international trade is not only consistent with ESD but can contribute to sustainable development, working out the rules for environmentally compatible trade will be a major preoccupation for some years to come.¹⁰ More generally, governments will need a greater understanding of the scientific as well as the political and economic implications of alternative courses of possible action. Often, as with climate change, governments will need to act while scientific uncertainty remains. It will require substantial resources to aid developing countries as well as to adapt domestic processes in developed countries. It will call for an innovative approach to

policy thinking by all sectors of the community and to the difficult task of mobilising domestic or public opinion to support policies which will inevitably have to accept short-term costs to gain long-term benefits. Above all, not since global security issues — and, perhaps, not even then — have we seen such a need for collective international action.

Sustainable development as a concept has been generally accepted in Australia. Because the term is imprecise it can support many political agendas. Yet the ESD process has achieved a degree of consensus on what those broad political agendas should be. There will remain many differences in practice but the degree of consensus was remarkable.

Implementing sustainable development will clearly not be achieved simply by changing a set of decision rules even were such decision rules available. Given that they are not, integrating decision-making on economic and environmental issues is an essential step in implementing sustainable development. But that too is not enough. Achieving sustainable development requires an acceptance that ultimately economic decisions need to be justified against the criterion of sustainability. That requires, in turn, fundamental changes in values and in attitudes. Such changes are inevitable in the long run. The question is whether we achieve them the easy or the hard way.

REFERENCES

1. Jim MacNeill, "The Greening of International Relations", *International Journal*, XLV, Winter 1989–90, 1–35.
2. Ecologically Sustainable Development Working Groups, *Final Reports*, November 1991, Canberra, AGPS, 1991; Roy Green, Stuart Harris and David Throsby, *Reports on Intersectoral Issues and on the Greenhouse Problem*, Canberra, AGPS, 1991.
3. British Prime Minister Margaret Thatcher, speech to Conservative Party Conference, October 1988.
4. This is discussed in Stuart Harris, "Natural Resources and Energy — and Sustainable Development", *Australian Quarterly*, 63(4), December 1991.
5. See the discussion in David Peace and Kerry Turner, *Economics of Natural Resources and the Environment*, London, Harvester Wheatsheaf, 1990.
6. Harry Clark, "Risk, Uncertainty and Irreversibility: implications for sustainable development", paper to ESD Intersectoral Issues Second Technical Workshop, Canberra, June 1991.
7. Mark Pearson and Stephen Smith, *The European Carbon Tax: An Assessment of the European Commission's Proposals*, London, Institute for Fiscal Studies, December, 1991.
8. Cecil Woodham-Smith, *The Great Hunger: Ireland 1845–9*, London, Hamish Hamilton, 1962.
9. Jon Elster, *Sour Grapes: Studies in the Subversion of Rationality*, Cambridge, Cambridge University Press, 1983.
10. Stuart Harris, "International Trade, Ecologically Sustainable Development and the GATT", *Australian Journal of International Affairs*, 45(2), November, 196–212.

DISCUSSION — I

John Taylor, President, RAIPA (ACT Division): Stuart Harris raised a number of interesting points which I must admit, in my rather isolated role, I had not been aware of. The possibility of carbon taxes adding to our international commodity problems is something that must make any government long for opposition. One of the problems for our country seems to be the difficulties that we have in dealing with the wide world where we do not have all that much leverage.

I was very interested in his comments about the ethical and moral judgments involved. Increasingly we see around the world judgments that have been made without a proper consideration of the ethics and morals coming back to haunt governments in the years to come.

As for income of future generations and the imprecision of the costs that economists like to consider, again, in my current position I am very well aware of the novels that are sometimes written in balance sheets, a very interesting form of fiction.

John LANGFORD (University of Victoria, BC, Canada): *May we have a little more detail on the things that you heard about appropriate levels of biodiversity in the course of your working through the enormous attack on the forests that your reports represent on the ESD working groups?*

Stuart HARRIS: I must admit that I am not an expert on the forest area. It was not one of my three reports. Any of you who have seen the pile of reports will know that they are pretty formidable reading matter. But the biodiversity issue comes up also in a number of the other areas, and mining has, in Australia, an equally sensitive inter-relationship with biodiversity as forestry. There are an enormous number of different issues raised by biodiversity.

The conservation movement has some quite impressive figures in terms of the reductions in the various forms of genetic resources that have taken place over a period of time. That has been held steady, in a sense, in recent years compared with earlier periods, but the loss of both animal and plant species has been quite substantial here as elsewhere. The mining industry argues that, first, it is now much better able to cope with working in an area of environmental or ecological sensitivity without damage; and, secondly, that given economic pressures, there is a need to have access to land that currently is held simply because it might be important, whether people know it is or not.

That kind of debate tends not to get very far, partly because there is so little information in the Australian context about much of our ecological resources and, indeed, their scarcity. Part of the concern that arises is, for example, that the only time in many cases that an ecological survey is done is when miners have gone into the area and they suddenly find, as seems to happen in most places when people take studies of this kind on board, genetic species they had not been aware of before. But they do not know whether that is a scarce or common species because nobody else has done any studies. Inevitably, then, the conservation movement says, "Because we don't know, don't do anything", and the miners say "Well, the chances are that it is probably all over the place and therefore, if we are careful, we should be allowed to go ahead". That is in the nature of the debate.

There is no doubt there is valid argument on both sides. Obviously one of the steps forward is to gain a lot more information about the ecological resources themselves. That, in itself, is a very slow, costly, time-consuming process — resource-intensive not just in funds but in terms of skilled ecological expertise. In the meantime the debate will continue to be based very much on enormous gaps in information as well as many other factors.

In the Australian context, because we have been an island for an enormous number of years, there are very specific varieties of species here that are not available elsewhere. People in the audience who know much more about this will be able to give figures of the extent to which we are responsible or have, within Australia, a disproportionately large part of the world's genetic resources. These are quite sensitive issues on a global scale. There is also much interest in the increased economic value of many of these genetic resources — pharmaceutical uses in particular. While we do not have very good data on this, the data that is coming forward suggests that this is a much larger asset than we have understood and one that is growing greatly in importance. It has substantial economic potential in the future.

Durham DAVIS, BHP: *Looking at the ESD process itself, the thing that strikes me is that it has been unique in terms of the degree of consultation it has introduced into what is essentially a political process. Given that throughout the ESD process we have included things such as the public consultation forums, which I severely doubt had any influence on the outcomes of the final reports, what has occurred is a raised expectation among the general public, industry, conservation groups, unions and others that they will be consulted.*

Concurrent with the ESD process there have been a number of processes going on which have looked at things such as the proposal for the Commonwealth EPA, the development of the intergovernmental agreement on the environment and so on, which seem to have been independent of ESD processes. How do you see the ESD process ultimately linking in with the other things that have been happening simultaneously, and in future will it be possible to sustain the level of consultation that has been developed through the existing ESD processes?

Stuart HARRIS: That is a very interesting question in the sense that it is where some fairly constructive thinking needs to take place, in two respects. I do not think it would be difficult to incorporate the effects of other activities. The reality is that we are moving into a field in which a lot of areas that we have not paid a lot of attention to in the past will become important in decision-making. If we can get the decisions right, then they will feed on the results of whatever other activities are taking place. I am worried about that.

You are right to mention the public consultation process. There is not only an expectation, but a belief that it is the public's right to have a greater say in many of the decisions that take place and will take place across the range of things, but particularly in the environmental/economic interaction.

That is inevitable in any case because, for the reasons I have given, many of those decisions will inevitably stay substantially political. There will be political judgments about moral or ethical issues as well as about strictly economic matters if you count all the spillover or externality effects because there will not be quantitative ways of measuring that.

The problem is how one does that without making a great drain on the resources of all the interest groups themselves. The ESD process was very demanding on the resources of all groups involved. Secondly, how does one do it without simply getting to a stage of paralysis by analysis?

I think part of the answer is that some of the mechanisms that people are familiar with will work in areas where there are specific problems to be addressed. I think there is no doubt that public consultation or at least an integrated or interactive process for developing better ways of handling the mining, biodiversity interaction, and probably the mining and forestry biodiversity interaction, and, indeed, the relationship with Aborigines, has to be developed where there are very specific issues to be dealt with.

For the rest I think it will be inevitable, and I think highly desirable, that rather than see a separate set of public consultation procedures develop, we turn the existing political process into a much more effective consultation procedure. The important area for improvement is to get the local politician, whether at shire council, State government or Commonwealth level, much more involved, so that people do not need a second track to government decision-makers but can go through the track that already exists. If you do not do that, I think the resource demands will just be too great and there will be too complex a set of procedures. I imagine BHP has experienced, as have most other industries, that when going down the project development process you are already in the business of public consultation. That is now accepted by the leading companies. It is not necessarily accepted by the large numbers of other companies in the industries, but that will become a fact of life and a component of decision-making by companies.

My understanding is that while it does not always work completely well, most companies which have learned how to do that find that it is a better way of handling potential conflicts than waiting until they arise and trying to resolve them after the event.

Richard MILLS, Secretary, Resource Assessment Commission: *I would like to pursue the point about decision-making processes and attitudes. Professor Harris, I think, said that you needed a change in behaviour and attitudes, but also admitted that the traditional and previous decision-making processes were not adequate. Will he expand a little more on how one gets those behaviours and attitudes to change in the absence of some kind of new decision-making process that people will trust? If your local councillor is to be seen as the immediate source of advice and decision-making, will the local community believe that that person will take into account all those values — all the economic, environmental, social, ethical and moral values? Or do they need some kind of machinery that produces some advice that they can put some credibility into?*

Stuart HARRIS: There is need for some kind of machinery of that kind. That suggests that I have supportive views of both Industry Commission and RAC-type operations. Questions of the precise nature of their functions are not necessarily obvious, but that kind of decision-making support by way of information and analysis is quite critical.

The other important thing is that since you will not be able to do that for other than a small number of the total amounts of decision-making conflicts that come up, you need some supplementary, more general issues. Obviously transparency is a mechanism that will lead eventually to at least some safeguards on conflicts of interest being concealed. There are certain types of decisions at local government level that probably should not be at that level anyway because conflicts of interests are very great. On the other hand, one expects that if the information starts to become available as to the basis on which they make their decisions — totally available to the public — there will be counter groups which will find it worthwhile putting the effort into analysing those decisions and being in a sense a conscience against which those decisions ultimately come to be made. That is a long, slow process. Transparency is not something that most people feel comfortable with if they are part of the decision-making process.

The problem we face is that we have an enormous amount of information on economic activities and very little information on the environmental activities which interact with those economic activities. Until that balance is better restored, we shall still have a lot of trouble in making decisions that incorporate both sides in some sort of balanced way. All you can do is hope that eventually you move towards that direction through better preparation of both the information itself and the methods of analysis that enable a sensible political decision to be made where you cannot push it back into the economic framework and let the market make the decision.

John Taylor: *Politicians are really there to take the decisions, taking into account all factors. My experience is that they do not necessarily look at the objective data at all, or, if they do, they do not regard that as the answer or the most important thing, and probably rightly so. I do not know whether Stuart Harris was involved in the old days in the National Water Resources Development program, but I think every recommendation over about five years was changed by the government of the day, after we had done the cost-benefit analysis. Of course, you can do a cost-benefit analysis to produce any result you want, but we tried very hard to be fair and objective, and the politicians did not take any notice. At the end of the first five years I put in a report to the Prime Minister saying what a total waste of money it had been and that we had better forget about it. So they doubled the amount of money for the next five years. That is the reality of economic decision-making or political decision-making. I am not suggesting that we were right and they were wrong — perhaps we need to go back and have an audit, but what I am leading to is the fact that politicians have to make judgments on all the available data, including their wish to be re-elected. Are we getting value for money?*

Stuart HARRIS: I am always an idealist rather than a cynic in this field. I think you are right in that politicians often will not take notice of the objective data. That in a sense seems to me to be their right, and they have to go to the country to defend themselves against that.

My experience has not been quite as sad as that, although I am aware that some horrendous decisions have been made in the past. I was involved in the Ord River cost-benefit analysis which continued to tell one that on an economic analysis basis, the Ord River scheme would not work. Eventually our recommendation was that the Ord River scheme would go broke, but if it was to go ahead, it should be recognised that it would send the farmers broke. Therefore, a mechanism was required to keep the farmers from going broke, even if it was decided to go ahead with the Ord River scheme for political reasons. In fact, they did take notice. In fact, the farmers took ten years to go broke instead of the three or five years it would have taken if the Government had not taken the action it did.

The trouble with the Ord River cost-benefit analysis was that it was not made public at the time. That is a much more difficult thing to sustain these days. People expect to see the basis of the analysis. There was no doubt that the public statements about the analysis were totally at odds with the actual analysis in the report. It was not necessarily governments. We had said, for example, that unless you could get a cotton yield of 800 lbs per acre, or something of that order at the time, the thing was not viable. People said, "Oh, we'll get 900 lbs per acre", which changed the whole cost-benefit cost analysis. Anybody who saw that figure publicly would have known that it was nonsense, but ministers were faced with several different sources of bureaucratic advice or expert advice that came up with different figures. They had no basis on which to make those judgments.

Therefore, it is important to make the material public. It makes it messy and slows things down at times, but eventually has a greater chance of achieving a result that is not too damaging.

John Waiko, Papua New Guinea: *Given internal Australian environmental awareness and mounting public pressure in support of sustainable development, can Professor Harris make any observations at all regarding Australian companies moving into smaller Pacific island countries in general, and Papua New Guinea in particular; and the attitude towards sustainable development in those countries?*

Stuart HARRIS: One of the important things that came out in the mining sector report was an acceptance — and it was not in any way a reluctant acceptance by the representatives of the mining industry in that report — that the standards that should apply in their mining operations overseas should be at least as good as those that apply in Australia. That may ensure that, at least in future, problems that might arise in mining or forestry or whatever will be basically dealt with at least as well as they are dealt with in Australia. I hope that solves the problems for Papua New Guinea.

Graeme Kelleher, Great Barrier Reef Marine Park Authority: *I wish to start with a comment and support Stuart Harris's statement about public consultation and transparency. We have been, without calling it that, operating the Great Barrier Reef area on an ecologically sustainable basis for about 15 years. At least that has been our intention and it has been overtly described in various documents. I am certain that we could never have achieved whatever degree of success we have if we had not been completely transparent. This does not prevent your being accused of telling lies or of making mistakes in decisions, and we are regularly accused of that sort of thing. Our response then is to go even more transparent and have an external review of the issue of some kind. I am not recommending the Administrative Appeals Tribunal as a method of external review unless you have an infinite amount of money. That is the process we have followed.*

Furthermore, not only in that case but in previous cases, for instance in the Ranger inquiry, we got a lot of valuable information from the public that we would never have got from the professionals. When people see the processes being transparent and that their opinions, and the facts, are taken into account, you then have a basis in a combative democratic society for people to accept a decision. Without that they are likely either to feel that the decision is wrong, or to go on opposing it after it is made.

Would Stuart Harris amplify the difference in meaning between economically sustainable development and ecologically sustainable development?

Stuart HARRIS: I do not know the answer to that one. Basically we have used the term ecologically sustainable development in probably a different sense than has been used in some of the international discussions. We have used ecologically sustainable development to have two components. One is that we are talking about sustainable development, which includes both economic development and environmental protection. Economic development in that sense means both material welfare and non-material welfare.

I think the ecological aspect of the term in the Australian context has a particular significance. It is symbolic from the conservation movement's point of view and a very important symbol from its point of view. And it reflects the fact that probably more than any country in the developed world certainly our ecological resources are both large and in need of protection. I think that is a particular aspect that is important.

For example, if you read the Dutch report — their response to the Brundtland Report — there is not a mention of the word "biodiversity", and for very good reasons. In a sense, while they have ecological resources, there probably is not a square inch of Holland that has not been dug up and turned over by the spade by human beings. So we are talking there about a different form of ecology than in the Australian context, where much of it is at least what the conservation groups call technologically affected by man, so that although Aborigines have been over most of it they have not really done a great deal to it in the way that modern people do with machines and the like. I think that is the fairly broad sense that we generally accepted ecologically as an addition to sustainable development, which certainly includes both economic and environmental factors.

Roy Cameron: *Stuart Harris, could you give us the benefit of your experience about one of the aspects that seems to me to be more acute in the current environmental/ecological debate? Your mention of the Ord gives me something on which to hang my question.*

Scientific advice to public administrators or government researchers was not that difficult to absorb or not that much in dispute. On the facts coming forward, you knew which scientists you would talk to and basically they were giving you much the same numbers, though not identical. How do you cope with the present controversies where you have got a very big range of scientists who say they are relevant and want to be heard? You have a very big range of numbers put to you, ranging from almost-impossible-to-know to very precise figures. As an administrator it would seem there is perhaps more ideological content in the scientific advice than was the case when people were coping with the public policy problems of, say, 20 or 30 years ago.

I am really asking you to agree or disagree with my diagnosis of the current problem and perhaps suggest solutions, if you say that there is a problem.

Stuart HARRIS: The interesting thing about the Ord River was that it was the scientists who kept changing the figures so that they could get the cost-benefit ratio to be positive, because they were convinced that this was a good thing and only the economists were standing in the way of a magnificent development for Australia.

It is a very important question. There is no doubt the decision-making processes will have to be much better informed on a lot of the science than they have been in the past. It will be much more important as a component of decision-making generally. I think that there are mechanisms, and the IPCC — the International Panel on Climate Change — brought together internationally just about everybody who was anybody in the atmospheric/physics/climatology field. Although opponents disagree on the grounds that it is too pessimistic a view — and I think all will have come out to Australia at one stage or another in the past six months — we do not get too many of the ones who think they have taken too cautious a view. But while there are a percentage of scientists who disagree with the IPCC report, by and large that is accepted, I think, as a respected and respectable scientific statement of what is the consensus among the scientists internationally.

That is one way of handling the problem of science. You can do it on a small scale in the Australian context, for example, probably just as easily for issues where the science is quite fundamental. But it also has the advantage that, although that process was quite open, not only did the basic drafts go out for peer review, but as soon as they were made available to governments, they were made available publicly. There has been a lot of debate about the content of the reports, and I think, by and large surprisingly, the reports have stood up extremely well. One knows that there are lots of young scientists who could make their name by finding a fundamental flaw in a report of that kind, and maybe get big chairs or win Nobel prizes. But, so far, nobody has got very far down their career path by doing so. I think that is a very good test of the process. I think that that process is essential in a lot of the scientific issues that will come up environmentally.

We have seen this to some extent in the Great Barrier Reef and the crown of thorns starfish. It could probably have been more tidily done right from the start, but eventually we have got some understanding of where the science lies. I presume that if it were not done, it could have been done on the Wesley Vale pulp mill and the toxins can be done on algae in river systems and the like. I think that process is the way to go, and I imagine we will have to use it a lot more in future than we have in the past.

Lauchlan McIntosh, Mining Industry Council of Australia: *May I perhaps inject a different tone into the conversation or the whole concept. Coming here this morning I heard the Archbishop of Adelaide speaking about the underclass in Australia because of the high unemployment. Is not there a real problem that we have great resources in this country in terms of knowledge and natural resources but that they are being seriously underutilised not only to the detriment of our own people in Australia but to the rest of the people in the world? Surely there must be some hope that out of the ESD process we will develop such resources. My question is: who is accountable for not using the resources? You talked about the transparency of decisions and of people wanting to look at it and to have community consultations, but who is accountable for doing nothing?*

Stuart HARRIS: Having heard Lauchlan McIntosh on that before, I am not sure I see that as the issue, although I can understand that that would be a concern on the part of a lot of people, not just the mining industry.

The point I made about public consultation and the concern to conserve our ecological resources is that we have to find a way by which we can cope with that problem to enable us to make efficient decisions in economic development as well as in environmental protection. That will be the hardest of the processes still to be resolved.

In regard to public consultation, there is a degree to which we have to avoid paralysis by analysis. It is very resource-demanding and time-consuming, and can be somewhat self-indulgent unless directed to specific problems. What I have suggested is as a result of reading the mining report. That points to a need to maintain the debate with the conservation people and the way in which to get that process really effectively working. It envisages a better basis of taking decisions to enable the economic development in that broader sense that we have talked about, and including the things Lauchlan McIntosh mentioned, to get effectively under way.

As I said in my paper, it is agreed that the environmental resources are not under threat when the economy is under stress. I think probably this year is not a good year for the environment in that sense. It is obviously much more important in developing countries where much of the problems of the environment come from the economic stresses in those countries.

The problem we have in taking a moral or ethical approach to what we do internationally is that by and large our record is not very great. Suggestions that we should continue to reduce our aid, for example, do not suggest that we have a great strength of moral commitment to the international community, except in very specialised areas.

Tony D'Abbs, Tony D'Abbs and Associates, Victoria: *I have spent a couple of years on industrial waste management. From a social policy perspective, my task was to assist a multidisciplinary team find a site for a waste treatment facility, including the infamous high temperature incinerator.*

I would focus my question on risk management and what happens after consultation. Our experience was that we did a good job in educating Victorians about the need for better industrial waste management, and the need for an industrial waste management facility. The only trouble was that when we tried to find a location for this facility, everyone said: "It's a great idea, but go and do it somewhere else". So if you were in the city, you were expected to build it in the country because it was safer, and if you were in a rural area they said, "Well, you produced the rubbish in the city, so find the answer to your own problems there".

As has been pointed out by a number of speakers, we all agree on ecologically sustainable development and, as Professor Harris implied, it is a fuzzy concept and that helps enable a consensus about it. But the question is, having consulted, having provided the information, having perhaps convinced 95 per cent of people that this is a reasonable solution, the reality is that a number of people at either end of the political and economic spectrum — and I will point to Greenpeace as one — can effectively say: "But there is still some risk associated with the construction of that facility", whether it be a high temperature incinerator or whatever. Reasonably, the residents in that community say, "Why should we bear the risk for the greater good of the community?"

I am sure Professor Harris is aware of this having been through the experience of the past 15 months in the ESD process. I am asking you to focus on the fact that after consultation, after the provision of information, when we have to make some hard decisions which will hurt somebody, for the greater good, how do we then amend the decision-making processes to move beyond paralysis after analysis?

Stuart HARRIS: That is a very good question, to which I do not have any answer. I think undoubtedly there will be some areas in which we are not going to make very good decisions. The report came out with basically a consensus view that there should be a high temperature incinerator because the risks of not having one were substantially greater than the risks of having one, accepting that there are risks in both contexts. The process of finding a site will be difficult. It may be a little less difficult than it was before, partly because there was pretty much a consensus outcome on that.

A lot of the sustainable development processes involves a long, slow process of changing values, but even when you get there, you will still have the "Not in my backyard" syndrome as a very important factor to deal with. I do not have any answers as to how you deal with that. Maybe there are others in the audience who could help.

In the case of the high temperature incinerator, Greenpeace — and this is not meant to be in any way denigratory of Greenpeace — is dependent on a technological fix. They say that sooner or later there will be a technology that comes along that will enable us to deal with this intractable or hazardous waste better than we can deal with it today. I find that interesting.

John Taylor: *I would comment that governments that have to decide everything on a win-win for everybody will find it increasingly difficult in the future. A country has to be very wealthy if it has to pay off the losers.*

Sustainable Development — A Sustainable Concept

*Fred Chaney, MP**

Amongst the tens of thousands of words that have been written and many more spoken about the Ecologically Sustainable Development (ESD) process I could not help but be attracted to a recent succinct summary from the Wilderness Society. The Society's Director, Karenne Jurd, was quoted in *The Australian* of 3 December as saying:

The pile of ESD books we have in front of us now is higher than the Prime Minister but they don't contain final answers. . . . it's going to be up to the Government to transfer all those words into action, and unfortunately in recent times we have seen no commitment from the Government to doing that.

Now, I should add that what the Wilderness Society thinks the Government ought to be doing and what we in the Federal Coalition think appropriate may not entirely coincide.

Nevertheless, the essential point that Karenne Jurd is making is that after this 12-month long formal ESD Working Group process — a process that has no doubt been simultaneously challenging and exhausting for the participants — the reality is that the buck stops on the Government's desk.

I note that in a paper prepared for the International Workshop being held in conjunction with this conference, Dr Clive Hamilton of the Resource Assessment Commission describes the state of play in a similar way. He says that with the publication of the ESD Working Group reports (and when he wrote his paper only the draft reports were available) "the ball is now in the Commonwealth Government's court".**

* The Honourable Fred Chaney, MP, is Shadow Minister for the Environment. Text of an address to RAIPA (ACT Division) National Conference on Ecologically Sustainable Development, Lakeside Hotel, Canberra, 9 December 1991. The address was presented, in Mr Chaney's absence, by Senator Rod Kemp.

** See Dr Hamilton's paper at pp 65–75 of this number of *CBPA*.

I think a slightly more accurate depiction of what has happened is that the ball has been firmly, I would suggest inevitably, *returned* to the Government's court.

As journalist Lenore Taylor, *The Australian's* environment writer, put it last week: "The Government now faces the same contentious decisions it could have made way back in 1988." But I am probably getting a little ahead of myself.

Let me begin, again, by endorsing the proposition contained in the title of this panel discussion.

I have no difficulty at all in affirming that the concept of sustainable development is, in itself, sustainable. I go further and say that continued use of the concept is inescapable.

I remain strongly of the view that the Brundtland-bequeathed notion of pursuing development to meet current needs without prejudicing the ability of our successors to meet theirs presents us with a very useful tool to help shape our policy approaches.

To view proposals from the standpoint of sustainability is a necessary perspective if we are to act in the long-term as well as the short-term interest.

The challenge we face at the end of 1991 is essentially unchanged from that we faced a year ago — how to apply that tool in a constructive way to help resolve environment-development issues in a way that will see the 1990s in Australia remembered as a decade in which solution-seeking replaced confrontation and political opportunism as the main objective.

It should not surprise anyone that this is the case.

Despite the best efforts of those many highly qualified and dedicated people who have contributed to the ESD process, it was always going to be the case that final decisions, final choices, would have to be made, on the community's behalf, by the elected government.

What we have just been through is an exercise in what might be called representative, as opposed to full public, consultation. Given the complexity of so many of the issues this is understandable and I suspect little was gained by the rather token attempts to engage in broader community consultation after — or, in some cases, before — the release of the draft reports from the Working Groups.

While we are not here today to discuss specifically the ESD process — although I will certainly be referring to some of the outcomes — I should make clear the Opposition's attitude to the work of the Groups.

There can be no argument about the value of getting people around the same table, people who, as I have said before, are more likely to have communicated through the media than directly, and forcing them to focus on specifics. From my discussions with various participants in the process there is little doubt they have benefited in terms of both improved personal contact and a willingness to consider arguments of which they might previously have been a lot more dismissive.

We have, therefore, been generally supportive of the work being undertaken. We declined, at official level, to criticise the provision of funding to conservation groups to allow them to participate more fully.

The target of what criticism we have made has been the Government. That criticism has centred on the lack of guidelines and clear objectives presented to the Groups when they began their tasks. We were concerned to avoid yet another "at large" debate on some of the basic issues.

Given the breadth of their briefs, and with the caveat that at the time of preparing this paper I had not had access to the full set of reports, I think the Working Groups have done a commendable job.

Certainly they have left major questions, such as the desirability or otherwise of a carbon tax, for the Government to decide or about which there should be further inquiry. But, as I said earlier, that is the ultimate responsibility of government.

The obvious question as to whether all the time, money and effort has been worthwhile cannot, at this stage, be answered. So much now depends on what the Government does with these reports.

The Prime Minister* has been, even for him in these days of leadership paralysis and watching his back, extraordinarily cautious in his response. The best he can offer is a "hope" that "by the middle of next year" the Government "will be well down the track" towards developing "an initial national strategy" for ESD. That hardly signals a determination to get on with the job with any real sense of urgency.

Yet there is an urgent need to progress sensible discussion on sustainable development in this country and there is

something that can be done immediately to increase the pace.

Despite the hopes of those who would wish to see the Commonwealth step in and play a big brother role on all environmental issues, the reality is that neither a Coalition nor an ALP national government will go down this track.

We would certainly not be interested in pursuing the Natural Resource Management Act model suggested by Dr Hamilton.** The agonies the Commonwealth has gone through over the past nine months in trying to come up with umbrella legislation to provide resource security for certain forest development projects has confirmed my scepticism about that sort of approach. The Opposition has yet to decide its final position on that particular Bill but I can say we would not contemplate trying to legislate in the all-embracing way suggested by Dr Hamilton.

Despite the best efforts of those many highly qualified and dedicated people who have contributed to the ESD process, it was always going to be the case that final decisions, final choices, would have to be made, on the community's behalf, by the elected government.

We certainly do not exclude the possibility of action by the Commonwealth where there is a clear national interest requirement — an extreme case example of which would be proposals which might endanger the Great Barrier Reef.

But we place most emphasis on the need to harness the co-operation of the States in advancing the concept of sustainable development.

In this respect we are at a critical point in our political history. The States have all agreed on the need to improve and rationalise our assessment and decision-making processes on development and environmental issues. In the communique following their meeting in Adelaide last month the State premiers spelt out areas of willingness to co-operate with the Commonwealth.

Included in this was, as Prime Minister Hawke has noted in his ESD response, agreement to participate in the ESD Working Group proposed by Canberra to consider the outcomes of the just-completed process.

That was one of the matters for discussion at the abandoned Perth Special Premiers' Conference, a casualty of the Hawke-Keating leadership struggle.

It would be tragic if the formation of this Working Group had to await a formal gathering of the Prime Minister and State premiers some time in 1992. Its establishment should proceed without delay.

Just as important in the context of sustainable development is the decision by the State premiers to enter into an Inter-Governmental Agreement on the Environment with the Commonwealth.

* The Prime Minister at the time when this paper was delivered was Mr Bob Hawke. He was replaced by Mr Paul Keating the following week. — Ed.

** In the paper at pp 62–75 of this issue of CBPA.

That, too, was intended for finalisation in Perth and it, too, should be signed immediately. It cannot be allowed to sit on the shelf until the heads of government manage to get together in the same place at some future date.

It is the job of governments to put in place political and policy frameworks within which decisions can be taken. In Australia at the moment we have a remarkable degree of agreement between Commonwealth and State governments of different persuasions about the way to go in this area. Failure to capitalise on this rare outbreak of unanimity would be unforgivable.

Underlying all this discussion about the concept of sustainability and its practical application must be an assumption that environmental issues now command a place of substance on the Australian public and political agendas.

If the community is not really taking the issue seriously, if business is only paying lip service to the need to inculcate a sense of environmental awareness as a natural part of its decision-making process, then we certainly are wasting our time.

There is an interesting coincidence between some specific matters mentioned by the premiers in Adelaide and the recommendations of one of the Working Groups dealing with perhaps the most contentious application of sustainability — the management and protection of our forests.

The Premiers' communique specifically mentions, as part of the proposed Agreement with the Commonwealth, the need to avoid duplication by accepting each other's assessment and approval processes. The Forestry Working Group, admittedly without representation on it from conservation groups, has come up with a very sensible proposition that sits well with this approach. It proposes that the Commonwealth and States agree on processes for land use decisions and that where the process has been adopted to the Commonwealth's satisfaction, its role ceases "unless forest utilisation/management alter or compelling new conservation issues are recognised".

It is interesting to note that this is quite consistent with the approach outlined in John Hewson's *Fightback* program which was, of course, prepared before the final ESD reports were published. In that document the Opposition says it will "give full faith and effect to State or regional forest strategies which are drawn up and implemented according to Commonwealth-approved procedures".

Similarly, the Working Group's call for co-operation between the States and the Australian Heritage Commission in assessing heritage values in forest areas, as is currently occurring in Western Australia, is mirrored in the Adelaide communique.

As Dr Hamilton mentions in his paper, there are no instant solutions in achieving sustainable development. I certainly

do not pretend to have them. But I do suggest that the cementing of an agreement into which the States are keen to enter is a major step which should be taken now.

Underlying all this discussion about the concept of sustainability and its practical application must be an assumption that environmental issues now command a place of substance on the Australian public and political agendas.

If the community is not really taking the issue seriously, if business is only paying lip service to the need to inculcate a sense of environmental awareness as a natural part of its decision-making process, then we certainly are wasting our time.

There are those who point to a slight slippage of the environment as an issue in opinion polls to support their view that it will disappear as a major factor. They could not be more wrong. It is natural that, during a period of severe recession, there should be greater focus on economic issues.

But even if the older members of the current generation might be giving greater attention to questions of personal financial survival, one only needs to visit a school or read, as I did recently, a few hundred primary and secondary school essays, to be reminded of how deeply fixed in the minds of our children are concerns about how we can achieve progress and development which does not wreck the planet in the process.

In terms of how best to achieve this laudable aim, you would be aware of the growing interest in, and use of, market mechanisms as an alternative to the traditional command and control approach.

I am pleased to note that at least two of the Working Groups — Energy Production and Mining — have recommended a combination of the two as most appropriate in most circumstances. As the Mining Group points out: "... in many instances effective markets do not exist in part because the data required to make price adjustments to reflect environmental costs is not currently available."

We are certainly very receptive to the application of market-based mechanisms as a means of helping achieve sustainable development.

But as the *Fightback* program makes clear we do not have a "blind faith" in markets and recognise their limits, as well as their capacities. As the document says:

Sometimes "free" dealings between people can harm the interests of third parties — by polluting rivers or the air, destroying the amenity of neighbourhoods. If so, government must be ready to intervene to protect the wider community.

When I look at what governments, or governments-in-waiting, can do in the 1990s to help translate the concept of sustainability into reality, I always return to one central point. That point is that we will not make any real progress towards improving our environmental and economic sustainability unless we can first restore some trust and confidence in the behaviour of governments.

I noted with great interest a reference in the Australian Mining Industry Council's media statement on the release of the ESD reports to a single line in the Mining Working Group's report. As mentioned earlier, I have not seen the full report but I have no reason to think that AMIC would misrepresent the context of the quote it used. That quote reads:

Not only do the conservation movement and the mining industry not trust each other, neither trusts governments.

I wish it were not so but that, I think, is a very accurate description of the state of play in Australia today. It has happened because of decisions such as the introduction of so-called resource security legislation after prime ministerial assurances to conservationists there would be no such action and a refusal to allow a mining development like Coronation Hill after assurances had been given it would go ahead if cleared on environmental grounds.

If I might quote again from the *Fightback* document:

Successful nations are those which strike a proper balance between economic freedom, wise laws, private morality and ethics.

Australia has a bit of catching up to do, not least in the area of resolving the environment-development issues that have plagued us during the 1980s.

The tragedy of such controversies is that they distract attention from addressing the very real issues of how to achieve sustainability. There could be no better current example than the national attention which has suddenly focussed on the Darling River and other river systems in New South Wales. The massive outbreak of blue-green algae in the Darling should help re-focus attention on what is Australia's priority environmental problem — land degradation.

It is a useful reminder that while the political battles rage over issues such as Coronation Hill and Wesley Vale, the massive task of improving soil and water quality remains.

Unlike the two examples mentioned, where studies can be done and decisions taken one way or the other, the issue of land degradation and the achievement of sustainable agricultural practices is so much broader. As in the case of the Darling algae bloom, there is no single or simple answer. That problem is the result of a combination of drought, clearing, chemical use and town and city developments which discharge sewage and other effluent into watercourses.

As the ESD Working Group on Agriculture says, in assessing the past and looking to the future, "there should be no admonitions". It continues:

In many instances management practices which resulted in damage or degradation were undertaken in good faith, with the sanction, if not the insistence of government and supported by expert advice. It is more important to plan a sustainable future; to understand that some current practices need to be discarded, that others need modifying to reduce or eliminate undesirable side-effects, and that new and better approaches need to be developed.

I doubt anyone would argue with that proposition. The question, as always, is how to achieve the goal.

This is not the time nor place to make a policy announcement nor to become overly political. But it is appropriate to reaffirm our priority concern for this area of environmental policy.

In the Hewson package, specific reference is made to clear environmental priorities. At the top of the list we say we will:

Implement an integrated strategy to combat land degradation and maximise biological diversity. This will involve support of existing programs as well as working with the States to develop new approaches to:

- revegetating over-cleared lands
- providing a policy framework which encourages farmers to avoid over-clearing
- providing appropriate tax arrangements for those who, for conservation or preservation reasons, incur expenditure on the protection of native animals and plants.

Discussions are now proceeding with farmer organisations, conservationists and concerned individuals with a view to developing a firm set of policy proposals as a contribution towards achieving sustainability in this environmentally, and economically, critical area.

Finally, I would like to make the point that key decisions have to be made on the basis of substance and national interest rather than for reasons of short-term political advantage. We must have a known and predictable framework for decision-making, and that is a key objective for the Coalition.

That is why I place so much importance on getting into place the sort of Commonwealth-State arrangements that have been thrashed out with respect to both the proposed National Environment Protection Agency and the Inter-Governmental Agreement that was so close to finalisation when the Perth Special Premiers' Conference was cancelled. With these in place we have some prospect of achieving the goal of sustainable development.

Sustainable Development: The ACTU Perspective

Peter Colley*

I speak as the ACTU's Co-ordinator for the ESD Working Group process, a task which my union volunteered to undertake. Given the economic recession, and the immense agenda that the Australian trade union movement has set itself in restructuring work processes and the very structure of the union movement itself, allocating the desired level of resources to what is obviously a key public policy issue has not been possible. Nevertheless, the ACTU participated in all nine working groups, a task undertaken by no other peak organisation, and is in the process of further developing its own policies to take ESD issues into account.

The ACTU has welcomed the release of the reports, but has expressed disappointment that more was not achieved in the year-long process. I would be surprised if any participant or reader of the reports considered the process to be an unqualified success. The reports are often overly wordy, sometimes impenetrable, and couched in terminology that was carefully designed to obtain the consent of all participants rather than to present to the government and public a clear vision or description of an ecologically sustainable future.

The ESD reports have been in the public domain for just one week; it is likely that few of you have had a chance to read the Executive Summaries, let alone the full reports. Unfortunately, they have not received a high public profile; the Goods and Services Tax proposed by the Federal Opposition and the parliamentary performance of our esteemed politicians have occupied the Australian media and the public's attention.

This is typical of the problems that Australia faces in coming to grips with the concept of sustainable development. The consumption tax is to sustainable development and Australia's future what a vitamin pill is to good health or a surgeon's knife to the treatment of heart disease; it is a small part of the picture; one option amongst many. It is not the big picture. Further, sustainable development is not something that can be communicated or discussed in a 90 second sound grab on television or what a journalist can come to grips with in a few hours reading. In a world where there is information overload and where people are

struggling to survive it is often too difficult an issue for many to understand.

Nevertheless, sustainable development is not a concept or a public policy issue that will go away simply because it is not convenient. The global community is definitely pushing up against the limits of the planet's capacity to sustain us in many instances. I firmly believe that sustainable development will be the major challenge of the remainder of this century and the beginning of the next. It will be a challenge not only to learn to live within finite physical or ecological boundaries, but also to chart a course of development that enables all the peoples of the world to attain reasonable living standards and life opportunities. Given that much of the world's population still suffers poverty and deprivation, it is clear to me that it is not enough to make our current style of development ecologically sustainable; we need to redefine development and pursue a more internationalist approach that reverses the increasing inequality that we see at the international level and within our own community today.

THE ESD REPORTS

To return to the immediate focus of today's forum — the ESD report. The ACTU has welcomed the release of the reports, but has expressed disappointment that more was not achieved in the year-long process. I would be surprised if any participant or reader of the reports considered the process to be an unqualified success. The reports are often overly wordy, sometimes impenetrable, and couched in terminology that was carefully designed to obtain the consent of all participants rather than to present to the government and public a clear vision or description of an ecologically sustainable future.

The exercise has nevertheless been a success in a number of ways. I see three major benefits:

- firstly, it has helped develop a dialogue where previously there was only conflict, and has thereby set up the basis for improved decision-making;
- secondly, it has focused the debate by defining broad areas of agreement and highlighting the outstanding disagreements; and
- thirdly, it has identified some of the longer-term and more intractable issues that we must face up to; that our current market and non-market systems do not cope with effectively and which will require the development of a new strategic vision and a new role for governments and public administration.

Establishing a process of consultation and dialogue

In the first case, it has brought to the negotiating table participants in the environment debate who have never been there before. In Australia, since the election of the Labor

* Peter Colley is National Research Officer, United Mineworkers' Federation of Australia. Text of an address to RAIPA (ACT Division) National Conference on Ecologically Sustainable Development, Lakeside Hotel, Canberra, 9 December 1991.

Government in 1983, we have had tripartite consultative processes in many areas, where government, trade unions and business have attempted to resolve differences or, at least, reach negotiated compromises on key issues. Of course, it does not eliminate conflict, but it stands in stark contrast to the confrontationist approach of other nations which have left societies bitterly divided and with zero social consensus on future directions.

However, the environment debate has not, till now, been part of that process. As a result we have had major conflict between development and the environment, with battles in the media and "on the ground" between environmentalists, business and trade unions. As a result we have often had governments making policy "on the run" on the basis of who shouts loudest and how near the next election is. The decisions that have been made have often pleased no one, and have served neither the interests of the environment nor of people or of industry.

If nothing else, the ESD Working Group process has established a process of consultation and dialogue which will enable policies that address the sustainable development issue to be made on a more rational and considered basis. We must seek to avoid any spread of the debacle that is the forest industry debate in this country.

Narrowing points of conflict to specific issues

The second major, and immediate, result of the Working Group process has been a narrowing of the points of conflict to specific issues. Consensus or tentative agreement has been reached in some areas, whilst the major differences of view yet to be reconciled have been highlighted. There is agreement that Australia must have further development, and that as a developed nation we have a responsibility to assist other nations to develop in the most sustainable way possible. There is agreement that we need broader definitions of development than simply gross domestic product (GDP) per person; we need a great emphasis on quality of life indicators such as literacy levels, public health, income distribution and equality of opportunity, as well as ecological indicators. There is agreement that we can have economic growth without equal or greater increases in resource use per unit of growth; it is possible to produce wealth without using ever-increasing amounts of material resources and energy.

It is even agreed that mining is an industry which is crucial to Australia's future.

What is not agreed are questions like:

- how effective is current minesite rehabilitation, and what are the limits to the practice of "multiple land use" where the same piece of land fulfils both conservation and economic roles;
- what should be the ground rules for the expansion of the network of national parks and conservation areas; should proposed sites be examined for both their ecological and mineral values, or only on ecological criteria;
- how strong should measures be to deal with soil degradation, chemicals use and forest clearance in farming;

- what sort of pricing and regulatory measures should governments take to encourage the development of a less resource-intensive transport sector, and to transform our highly inefficient and polluting cities;
- finally, and most crucially, there has been no agreement on the role of energy pricing in achieving sustainable energy use, or the longer term role of fossil fuel energy sources, especially coal, in Australia's economic development.

Everybody seems to agree that we should use energy more efficiently, and that we should seek to use *less* of it for any given activity. There is even agreement that the most appropriate technology should be used for any particular application. So we should have programs to achieve much greater use of solar/gas hot water heaters, and the use of gas in domestic cooking applications.

But the Working Groups have not recommended any across-the-board increase in the price of energy, of any size, as a means of either forcing changes in consumption by itself, or as a means of financing energy efficiency programs.

In this key area, business groups and the State governments were totally opposed to any new energy tax on the basis that sound grounds for its introduction and appropriate size had not been established. Environmental groups were in favour of a small "climate change levy" in order to finance alternative energy programs, but were very unclear as to the size and exact workings of the tax or levy. Some Commonwealth government departments were in favour, on the grounds that it was or is the appropriate market solution to a perceived problem, whilst others were opposed because they could see the adverse implications for Australian industry. Welfare groups are opposed, because they see the tax as inherently regressive. The ACTU representatives on the Working Groups expressed interest in the idea of such a levy, but *only* on the basis that it does impact adversely on our international competitiveness or on social equity.

The reason? Energy is a key consumption item and a fundamental necessity of life. Arbitrarily increasing the price would impact more on the poor and disadvantaged than on higher income groups. Further, a major part of Australia's comparative advantage in international trade is based on energy and on energy-intensive products. So, in the absence of international consensus on the need to reduce greenhouse gas emissions, it does not make sense for Australia to raise energy prices which would inevitably increase inequality in our society and hurt our international trading position which is already poor.

Identification of longer-term and more intractable issues

This leads me to the third major outcome of the ESD Working Groups. Whilst maintaining a focus on the here-and-now, and in general recommending the "greening" of our current industries rather than the creation of alternatives, the groups have thrown up some longer-term issues which must not be under-estimated in their gravity.

The structure of our cities and our transport sector have been found to be unsustainable in the long run. Many of our manufacturing industries face the daunting prospect of

upgrading waste management practices to standards previously inconceivable. Soil degradation and loss of water quality are a continuing problem which threaten to devastate large parts of this continent. The massive contamination of Australia's largest river in recent weeks highlights how close to certain biological limits we already are.

No one wishes for a centrally planned economy; and trade unions are certainly not naive enough to think that governments and bureaucrats can or should replace freedom of choice in the market place.

Most difficult of all is the question of fossil fuel use. If further scientific research confirms our worst fears about global warming, then major and costly global action to avert the change will become necessary. Whilst there are many low or zero cost measures that will mitigate global warming, there are no overall solutions that will meet "Toronto" style targets painlessly, and any environmental group which says so is deceiving its membership and the public. Further, Australia is more dependent than most nations on fossil fuels. In fact, our low cost energy supplies are the basis of our largest export industry, coal, and the basis of many resource-processing industries such as aluminium and iron and steel, which have been identified previously as the basis of Australia's economic future. Strong greenhouse measures may well destroy such a future. What we are good at producing will no longer be wanted. The basis of our current standard of living will be gone. Our net foreign debt will spiral out of control.

It is in the face of such grim scenarios that the strategies of government must be rethought. The rhetoric of free markets and of the level playing field, much favoured by both the Commonwealth Government and the Opposition, cannot come to grips with a radical restructuring of the long-term future of this country. None but the bravest orthodox economist believes that a simple altering of prices in the market place will of itself produce a solution to the dilemma. Comparative advantage and economic prosperity are not achieved overnight; they are the result of both natural endowments and of conscious economic strategy. The loss of a major comparative advantage will not automatically lead to the creation of another, at least not without immense social and economic dislocation.

The current "hands-off" approach of most public policy, the absence of strategic industry development policy, is compounded by the attitude of much of business in this country. Only a few have research and development, investment and business growth strategies that span more than ten years. It is in the nature of business that it cannot think in the long-term; the dictates of the market are that assets today, and returns in the next few years, are worth much more than assets and profits in 30 years time. Only today's generation are players in the market place; the generations

of the future have no market power. So companies are largely incapable of conducting their activities on the longer-term basis that society needs if it is to meet the challenge of sustainability.

As I see it, this is the core challenge of ESD. Whilst Australian trade unions are restructuring themselves for the 21st century, whilst we are developing and redeveloping industry policy to ensure Australia's economic security in the coming decades, many in business, bureaucracy and government want to believe that fiddling with pricing and correcting market mechanisms will produce the solutions. The evidence is emerging that the market simply *cannot*, in many cases, appropriately value and manage natural assets on a long term, inter-generational basis.

This is not to say that markets do not play a key role; *they do*. No one wishes for a centrally planned economy; and trade unions are certainly not naive enough to think that governments and bureaucrats can or should replace freedom of choice in the market place. But the message of ESD is that governments have a responsibility to both this generation and those yet to come. In a world where resources are not really finite for practical purposes *but* the capacity of our planet to absorb our use of them *is*, governments will be required to develop long-term strategic visions; visions which do not seek simply to capitalise on what is already there, but which seek to develop new industries; new ways of living and working, new markets and market structures, and new choices for players in those markets.

That, to me, is what sustainable development means. It is occasionally hinted at in the Reports but it is certainly *not* the agreed conclusion. The debate is still young. It is evident that Australia is a world leader in formulating policy in this way and that we cannot look to packaged solutions from other nations. Much of the research now being undertaken in Australia on energy use and economic modelling has not been done by the OECD, the International Energy Agency or any other nation; again we are world leaders. Nevertheless, there is a great deal of learning to do. Most importantly, there is a desperate need for intensive information sharing and dissemination on ESD issues, so that easy options can be implemented *now*, and so that the entire community is aware of the benefits and costs of the harder options.

Further, there is a need to internationalise the debate. At the moment it seems to me that each nation is choosing to go its own way, developing policies that suit its own combination of environmental problems and economic imperatives. At the international level it seems that opportunism rather than altruism are the order of the day, which no doubt brings a smile to the face of most economists. The United Nations Conference on Environment and Development in Brazil in June 1992 is in danger of turning into a straight battle over foreign aid between Developed and Developing Countries; the familiar North/South conflict. It is to be hoped that, for the sake of the planet and those who live on it, a more positive agenda is at least set in motion.

Ensuring a Healthy Environment and a Healthy Economy

Robert Bain*

The starting point for our consideration of ecologically sustainable development (ESD) has to be to recall Brundtland's message. She said "that while a healthy economy does not guarantee a healthy environment we know that without a healthy economy the environment is almost certainly going to get low priority and be in bad shape".

As we understand it, the ESD process is about ensuring both a healthy environment and healthy economy.

... that economic growth provides the financial wherewithal and political capacity to undertake major environmental improvement.

One only has to look at Eastern Europe to see the environmental consequences of an economic disaster.

Some recent commentators on the process seem to believe that the development component of ecologically sustainable development is only put in there because of pressure and political lobbying from industry groups. This argument misses the point that Brundtland stressed, that economic growth provides the financial wherewithal and political capacity to undertake major environmental improvement.

One only has to look at Eastern Europe to see the environmental consequences of an economic disaster.

The forest industry fits well into a long term ecologically sustainable development framework for Australia. The production processes for wood rely largely on solar power, soil, chemicals and moisture and, in most applications, timber requires much less energy and non-renewable resources than the alternative products. The whole cycle of

tree growing, timber production and the storing of carbon in timber products means that in nett terms the impact of the industry on Australia's CO2 emissions is probably minimal.

The other major component of the forest industry, the pulp and paper sector, is well-suited to large scale regional employment with a low pollution and environmental impact and provides a basis for a large proportion of this country's recycling program.

The ESD Working Group on Forestry heard a wide range of arguments on forest issues. The group visited unlogged, old-growth forests and other forest areas that had been logged and regenerated very successfully over many years. The group concluded that our native forests need to be assessed very carefully for all the ESD values and the reservation system adjusted wherever necessary to protect those values. However, once this assessment process was completed there is no reason why the balance of the forest areas should not be used on a long-term sustainable basis for commercial wood production.

The conservation groups argue that these results should not be given credence because they chose to withdraw from the Working Group. In fact, the Government replaced the vacant conservation chairs with two senior scientists with a great deal of expertise in this field, one of whom gave the evidence on behalf of the Australian Conservation Foundation at the Resource Assessment Commission's inquiry into forests. I think it is doing these people a grave disservice to argue that they would put their name to a report that did not adequately reflect scientific concerns about the management of Australia's forests.

My only regret about the Working Group is that the National Parks Services were not represented. A large proportion of Australian forests are within the park and reservation systems. By and large these are very badly underfunded and therefore cannot be adequately managed. I believe that some of our parks have deteriorated to the point where ESD principles would be better maintained if they were converted into multiple-use forests than left without any management of fire, feral animals or intrusion by non-native flora species.

* Dr Robert Bain is Executive Director, National Association of Forest Industries. Notes for address to RAIPA (ACT Division) National Conference on Ecologically Sustainable Development, Lakeside Hotel, Canberra, 9 December 1991.

DISCUSSION — II

Gerry Morvell, Department of Arts, Sport, the Environment, Tourism & Territories: *Senator Kemp [who presented the paper prepared by Fred Chaney, MP] talked of the differences between a command and control mechanism and a market forces mechanism in determining where we are going. At what point does one decide which one has failed and which one does one switch over to, as both have limitations?*

Rod KEMP: I do not think there is any clear guideline. I think there are many areas where markets can work effectively. It is often better to use market forces and market pricing. For example, if we had the data on what were some of the real costs to the environment, those could be appropriately locked in. Clearly market forces would perhaps be more appropriate than command and control.

One of the great advantages of market forces is that one tries to eschew some of the more confrontationist approaches, which often come from the use of command and control. If we can resolve our problems through the market, we run vast sections of our society as a result of the market. People have to get together, work together and cooperate to work out how to deal with supply and demand in the economy. We can often use market forces to avoid the very conflicts which have occurred in the 1980s over many environmental questions.

I am sorry I cannot be more specific in answer to the question, but a lot of work has been done in the past few years on how market forces can be used more effectively in relation to environmental issues. I think that particular focus of work will become even more important in the 1990s.

Sharon Beda, Earth Foundation: *Could Karin Sowada tell us the Democrats position about putting an economic value on the environment — the air, the forests and so on?*

Karin SOWADA: As Peter Colley said, it is quite clear that the basis of our economic indicators do need reassessment. At the moment we think they are focused very narrowly on a very strict set of criteria. At the moment part of the problem with the environment debate versus economic development is that no value is put upon environmental matters, such as clean air and clean water systems. The economic cost of dealing with environmental problems is just not taken into account.

In respect of the problem in western New South Wales with the algae bloom, that is clearly an economic cost which has received very little attention from governments and government authorities over time. Clearly there needs to be a reassessment of the economic costs of environmental problems. That needs to take place by way of consultation and needs to permeate government policy-making.

Sharon Beda: *May I follow that up by asking people on the Panel whether they feel that environmental problems have resulted from a failure to value the environment, or whether there are other causes?*

Robert BAIN, National Association of Forest Industries: I think many of our present problems are a result of ignorance. We were not aware of the consequences of a lot of things we were doing even a few years ago. That applies, for instance, to forestry, mining and agriculture. Wearing earlier hats, I was involved in clearing large parts of western Victoria that with hindsight, and going back there today, I see was clearly a mistake. A lot of it falls into that category.

I do not think you can devise a price-based system that will really overcome that. It would be nice to think you could, and conceptually perhaps you can, and a lot of time and money has been spent on trying to come up with price-based systems in valuing wilderness, biodiversity and other basic conservation concepts. I do not think we will find many of those very practical. We will have to take a command and control approach and be pretty risk-averse, knowing what we now know and the holes that we have fallen into over the past 20 or 30 years. I do not think any of the fancier ways of trying to put dollars and cents on concepts like wilderness or inter-generational equity will be the answer, although it has generated some nice literature and lots of good things to read.

I read over the weekend one of the papers that went to the Resource Assessment Commission's forestry report, which contained a phrase that I hope finds its way into the final report. It said that the market was a good servant but a poor master. I think that is the approach one takes to the market. In our particular circumstances, once a log leaves a forest and the environmental consequences have disappeared, the market should take over; and whether that log is used for furniture or woodchips or anything else, I cannot really see why the Government needs to get involved. In terms of managing the environment that that log comes from, I think fundamentally it has to be a pretty risk-averse and command and control, and, hopefully, science-based, process.

Rod KEMP: To look at the other leg of the question, if you get the environment wrong and place too high a value on particular issues which have dominated debate in the past five years, the economic cost of that is also very great. The reason why the Government is now back-tracking at a rate of knots on these issues is that it has come to the conclusion

that a number of the major developments which it effectively vetoed from 1986 to 1990 onwards were wrong. In fact, I think a large proportion of the Cabinet felt that. The Government is now looking for a way out.

If I may pick up the other angle, if one places too high a value on growth in the economy and does so recklessly, that, in the end, imposes real costs on the community. We see examples of that. On the other hand, if you get the environmental issues wrong, you also impose a very high cost on the community. I think, as Robert Bain has pointed out, if we get those issues wrong and stop a whole range of activity in forestry, the economic cost will be huge. When you consider the environment on a world-wide scale, it may not do much to help. In fact, the position may be worse because we have then to import more goods from countries such as Malaysia and Brazil which are facing the same problems that we face here, but may not be able to deal with them as effectively.

Peter COLLEY, United Mineworkers' Federation: I have two comments. One is about using the market mechanism. A key concept is the idea of internalising externalities. Pollution and environmental degradation are often referred to as externalities which are not accounted for in the market. The solution that seems intuitively logical is simply to internalise them. The problem is that administratively that may be more complex than a few simple regulations about use of resources. In trying to price everything and incorporate them into the market, we may end up with a very cumbersome mechanism. There is ample evidence that simply internalising a lot of externalities into many of our current markets, particularly in energy, will soon bring the market to a grinding halt. That is why we need a rethink as to the most efficient, least-cost way to achieve the solutions rather than having an ideological commitment to market or non-market mechanisms.

There was one other point relating to development of major projects. The ACTU is not a supporter of development at all costs. It does not have a cargo cult mentality of placing all its faith in major projects to rescue the Australian economy. On the other hand, there is a definite need to get productive investment going in this country. One of the problems we face is that certain forms of investment, short-term speculative investments, are environmentally benign. Someone can speculate on the stock market or in inner-city real estate on a short-term basis trying to make a quick buck, and there are no environmental controls to be gone through. But longer-term, productive investments involve environmental interactions. We have to try somehow not to set up too many hurdles to that productive investment. We need to have the best world practice in environmental performance, but the guidelines have to be clear. If we err on the side of caution continuously, we are giving a signal to business not to invest in long-term industries but to spend its money in the short-term money market and make a quick buck there. That is a dilemma that we face in trying to get economic growth and environmental conservation.

Karin SOWADA: I wish to correct something that Peter Colley said in his address, which was that the Australian Democrats favour the phasing-out of the coal industry. Certainly we are not in favour of doing that in the very short-term or even in the medium-term, but the point I was trying to make was that we see that, in tandem with the coal industry, there need to be moves towards developing renewable energy sources, such as solar energy, geothermal power and wind energy. Certainly my work on the IST committee in its reference on electricity and gas generation and transmission has made it very clear to me that there is clearly no way that solar energy will sustain the industries that require high volumes of electricity. The state of technology as we now stand is not capable of dealing with those sorts of energy needs. However, in terms of long-term planning, coal resources are finite, and we need to be looking now at ways of replacing those coal resources in the very long-term. That kind of research needs to be happening now, and government and industry need to recognise a commitment to ensuring the long-term viability of industries.

Certainly the Democrats recognise the very important role that the coal industry plays in the economic health of Australia. The coal industry has a role to play in helping to reduce greenhouse gas emissions. As we know, black coal is very low in sulphur and a low ash coal, as opposed to many of the other coals used in the northern hemisphere which generate large volumes of sulphur that contribute to acid rain and so forth. To that extent we would encourage the coal industry to develop its export markets. That is a positive role that Australia can play in helping reduce the total level of international greenhouse gases.

Tony D'Abbs: *I would like to give you all a bit of a Dorothy Dixier. I admit to being a little frustrated some hours into this Conference. We all acknowledge our support for ecological sustainable development, and the next moment we say, "God, it is so bloody difficult. What are we actually going to do to achieve it?"*

Answers to earlier questions about putting a market price on the environment talked about the administrative complexities and suggested that was not the way to go. The concept of sustainability indicators has not received much discussion so far as I am aware in this country. As a point of background, we have economists every day, every week, every month providing us with an analysis of our economy against a set of indicators. We have the environmentalists presenting a different set of ecological indicators. At the moment they are worlds apart.

If we really are going to start to talk to one another about developing this region in a sustainable manner, it seems to me we will need to come up with some indicators. Let me float a loose concept and ask each of the Panel to comment on the notion of the introduction of the concept of sustainability indicators, which would be brought into the planning process at the beginning rather than at the end when we do an environmental impact analysis. It is an open-ended question asking you to comment on the value or validity of such a concept.

Rod KEMP: I think that in the whole process of the working parties on EDP it would have been better if the Government had made known its bottom lines. In other words, if it wanted to proceed to have a viable forest industry, it would have been very handy in developing the work of the groups to have a clear idea of the essential targets. We could then see whether those goals could be effectively achieved.

On the economic development side of the equation, we have many indicators that show that it is not working. Figures of 10 to 12 per cent unemployment point to the fact that we are falling down badly in terms of development. The foreign deficit and our debt show that the Australian economy is not working particularly well at the moment. In regard to environmental indicators, the algae bloom in the Darling River shows that we have particular problems there.

I think you are asking me to come up with a monthly indicator that would help to focus the debate. I am not sure that I can do that. But as a general comment, I think that what has come through the papers today is that the political debate also operates in a market. It is very important for political parties — I am not only referring to the major political parties but to other groups — to try to get their message to the particular market-place. The market that we have seen in the political arena in the past five or six years has involved various groups seeking to highlight particular projects with which they either want to go ahead or do not want to go ahead. That grabs the attention of the community and the whole focal point of debate starts to come around.

It is my impression that, as a result of the working parties that we have had, where people with a variety of views have come together to discuss issues, it is a better way to help to refocus the market in political debate on the environment. I suspect that if one cuts through the rhetoric used by Peter Colley, Robert Bain and Karin Sowada, but not, of course, myself, one would conclude that there is a fair degree of common ground on these issues. I think that is a very good start indeed. I just wanted to make that comment, although it was not directly related to the question.

Getting back to the question, the answer is that, no, I cannot come up with a particular indicator. As a general indicator, I would instance the fact that four of us, some of us who would have perhaps widely differing views, are prepared to come together and give papers which, in many ways, are fairly similar. Indeed, one of the dangers of this Conference might be an outbreak of agreement among most of the people involved. That is always a danger with seminars. But that in itself is an indicator that is encouraging.

Karin SOWADA: In terms of ecologically sustainable development, obviously there must be a degree of consensus and agreement over how we are to achieve that goal. I would agree with Senator Kemp. It is clear to me that the kind of economic indicators that we have are not a measure of environmental sustainability. Perhaps as a follow-on from the ESD working groups, now is the time to develop indicators that can be used to measure environmental outcomes.

Let me take up the issue of the stable policy environment that business keeps crying out for in order to make development decisions. One thing that has become clear to me, having talked to witnesses from mining companies and so forth, at the gas and electricity committee inquiry, is that for many business groups the notion of a stable policy environment is a policy environment that does not change in the long term. It fails to recognise that the political process is dynamic and that policies will change during the electoral process, as conservative and Labor governments are tossed in and tossed out of office. I think business needs to recognise that policy-making is dynamic, that it is not static, and that the needs of the community as reflected in the democratic process will change over time. That is a matter that business needs to take on board when calling for a stable policy environment. I certainly agree that there needs to be a much clearer process available for business in making decisions.

Peter COLLEY: To speak directly on the question of sustainability indicators, I think I mentioned a few of them in my address, mainly economic and social indicators, such as literacy, employment rates and public health. To those can be added ecological indicators such as soil degradation, energy use per unit of GDP or energy use per person. Perhaps, and this is a most difficult one, one could add key species indicators. There is evidence that certain species are a basic indicator of the ecological integrity of various ecosystems. That requires a great deal more research in that area. We can also talk about things like waste generated per person and the percentage of waste that is recycled.

I think there is agreement that trying to get down to one indicator is neither possible nor a useful exercise. I think a series of indicators will probably be the way to go. That leads on to the question of natural resource accounting and altering the Australian national accounts to take ecological values into account. I think the Australian Bureau of Statistics was contemplating that, but has moved away from it quite decisively on the basis of complexity. It will undertake natural resource accounting, I believe, where it will try to develop records of stocks and flows and natural resources, but they will be quite separate from Australia's national accounts.

The danger there, which was also seen by the conservation groups, was that if you amalgamate our single GDP figure with a single environmental resources figure, you actually get one number to indicate your success or failure on environmental matters. There is no way that the environment can be reduced to a single number to measure progress. It would flatten mountains and fill valleys, and it is not an appropriate way to go.

Robert BAIN: I shall not say much about indicators, but in the preamble to the question it was suggested that we are all sitting around and saying that it is too hard. It is all very well for us to be critical of that, but it is extremely hard. It is not hard for the reasons that are sometimes pointed to, that it will upset the large firms. Generally the large firms can

move off-shore. The large firms and the executives who work for them are very mobile. I have seen this very much in the forest industry. A number of the larger firms are moving their manufacturing out of Australia, for a variety of reasons, but at least partly because of the way in which the environmental approval process is being handled or not handled.

The difficulty is that it leaves the people behind. As we close a plant here and employ a whole bunch of people in, say, Kuala Lumpur, we put a block of people out of work here. In most of the areas in which we are working unemployment is well over 20 per cent. I was in the Latrobe Valley recently and there is a big concern there. The environmentalists' campaign is to close down what are called the central highlands forests of Victoria, which are the 50-year-old regrowth from the 1939 fires, but which have become old growth in the lexicon of the debate. We put a couple of ads on the local radio in Morwell one Sunday morning, on a rotten windy wet day. Some 3,500 people turned up on a footy ground to find out about their future. The mayor came to me and said, "I believe that among people under 25 years of age we have 40 per cent unemployment". He said that every type of community facility was totally overstressed; it had become a human disaster area.

That is what is hard. It is easy to say, "Well, to be super protective to the leadbeater's possum, we should close all those central highlands". But what will be hard is to deal with the Latrobe Valley following the moving out of manufacturing from that valley. That is the tough part. It is not hard to move big companies overseas; it is very easy. The social problems that you leave in the wake of doing that will be the hardest part of this whole ESD debate.

Robert Fry, Supervising Scientist, Alligator Rivers Region: *I wanted to ask a question about what I believe is one of the most difficult matters raised by the ESD debate. I refer to how one deals with how one considers posterity and how one handles the inter-generational problems.*

One problem of the ESD debate is in setting the time-scale for the long term as being 2030, which is an absurdly short time for the long-term in some of the matters that we have to consider. But even the question of 40 years introduced a totally distorted debate on energy policy, which meant that nuclear energy was not given any consideration at all in these exercises because everyone recognised that, in Australia at least, nuclear energy would not be playing a significant role over the next 40 years, so the matter was not even considered as to whether it might or should. But that is by the way.

*Mr Colley said that business cannot think beyond 10 years. My question for the politicians was, how long ahead can they think, and how is one to handle the problems of making political decisions which will perhaps appear to be electorally disadvantageous to them, when decisions need to be made today which will bear fruit perhaps, if they bear fruit at all, 50 years or even 100 years ahead. My question is: do our present political institutions allow such problems to be dealt with?**

Peter COLLEY: Obviously I cannot speak on behalf of any political party. I would say the answer is that our current political system does not handle that well. I cannot point to any political system elsewhere in the world that is set up for that. I think that the trend towards consultative processes removes from government the volatility of some public policy-making. It sets new constraints on what governments can do if they are tied into a process of consulting major interest groups in the community. Therefore, that is a positive way to go. Canada has done that with its greenplan, which some say was just a PR exercise, but it was more than that. It was simply not as detailed as the working group process which has just occurred in Australia.

I think consultative processes develop greater community understanding of the issues and therefore act as a constraint on governments and their decision-making, so you can get, hopefully, a longer term time-frame. But when we have elections called often every two years or less, I see it as difficult for any politician or party to undertake the visionary steps needed to set up sustainable development over a period of 30 or 40 years and longer.

Robert BAIN: All we know about forecasts of that length of time is that they will be wrong. You have to have management systems which quickly pick up when things start to go wrong, when the fish quota falls off, or the algae bloom occurs and which respond. I think that the answer is not in trying to predict some future, 100 years out, but to make sure that you have political and scientific processes that respond to things, that monitor species, soil types and so forth, and force a response. I think you can only try to ensure that the processes will pick up the sorts of problems that you are worried about and quickly give you a response. I do not think any system, be it business, political or anything else, has the capacity to look forward 100 years.

Graeme Kelleher, Great Barrier Reef Marine Park Authority: *So far people have been pretty pessimistic about indicators, and from my experience I can understand why. Years ago I was in charge of the Commonwealth Government's soil conservation and water conservation programs. Back in those days I tried to see why the program around Australia would not adopt as an objective the idea that the rate of soil lost due to erosion should not exceed the rate of soil creation by natural processes. I could never get a minister or even a senior bureaucrat to accept that even as an objective. I say now that despite frequent letters to the ESD people and appearing in person, I cannot get the ESD groups to accept it as an objective.*

* N.B. Senators Kemp and Sowada had left the Conference when this question was asked. — Ed.

My question is: how on earth can you claim to have ecologically sustainable farming if you are losing soil faster than it is being created? Why will people not adopt that as an objective? It is not a sufficient objective. You can still get soil degradation without losing soil, but it is a minimal objective, and they will not adopt that. Why does that happen?

Stuart Harris, Australian National University: *I shall attempt to answer that question as an excuse for commenting on something else. The answer is I do not know. I did not chair the agriculture committee, but, on the other hand, the inter-sectoral report will have a quite detailed coverage of the issues of environmental indicators of a variety of kinds.*

I do not think it is necessarily the case that any particular measure has been rejected. What we are really saying is that there needs to be a get-together to work out what essentially should be the appropriate indicators. I think Peter Colley's comments are right. We need a variety of indicators, and some will be very limited in their use in a policy process other than in the particular context in which they arise. I have at least that qualification to put on Graeme Kelleher's point about the rejection.

Let me also make a couple of points about economic instruments and the fact that I was a bit worried about the answers that came out on economic instruments and the valuation of environmental resources.

There are two aspects to valuation of resources in the context in which the question was asked. On the general question of valuation of environmental resources itself, if you say that you regard wilderness or a genetic variety as important, then that is putting a value on them. In fact, you have to do that; there is no way you cannot do it. It happens to be a fact of life. If you are going to reserve them, then the costs of doing so are all the alternatives that you give up. That is an opportunity cost. There is no doubt that that kind of valuation goes on and it is better to have that explicit than implicit. The more we accept that even though those values cannot be measured very often, they are important values. That is what the ESD process is all about.

The second question is the use of economic instruments. There is no doubt that seldom will you use an economic instrument by itself. It will be a mix of regulations and instruments. There are some things that you cannot internalise. We cannot internalise easily the greenhouse problem, or the ozone layer problem — we internalise it in the manufacturers that use, or used to use, CFCs. Many of the environmental issues of public good that do not lend themselves to internalisation you deal with generally through taxation, through command and control measures or a mixture of both. If you are to have exchangeable permits for pollution or for emission controls, you will set a figure which is a command and control measure, and you will then use the market to make that effective.

There is a regulation and a market measure which are exact at any time. If you put on a regulation, you are using a market measure in a backwards way; and if you put on an instrument that is an economic instrument, then it has its exact comparability with a regulation. They are only alternatives in terms of which is the more efficient.

If you want a very clear quantitative answer, which you would do for certain things like mercury, effluents and things like that, you would certainly put on a regulation because there is much less uncertainty, much more confidence that you will hit the target. If you are not specifically concerned about being precise, then you will use an economic instrument, usually because it is much more efficient. If you want to get the messages through that do not require a great deal of information and do not have a large amount of supplementary regulations, then you will use a market instrument all the time. Regulations are enormously information-demanding and, if they are not, then they are inefficient. So it is a question of horses for courses. For most courses part at least of the horse will be made up of economic instruments and will require some degree of valuation of the environment.

Robert BAIN: *I do not think there is any disagreement between my position and Stuart Harris's that you have to use a mixture of instruments. When I was saying that the market instruments have only limited practical effect, if you cannot actually buy and sell something and have to ask somebody what would they pay for it if in the totally unlikely circumstance they ever had to buy it and get into manoeuvres to try to establish a phoney market, then you are wasting your time. There is a lot of literature about that sort of approach at the moment. I do not think it has much going for it because, first, the person will never actually have to pay the money, and probably will never buy the thing anyway.*

If there is a pendulum between development and the environment — which there should not be because it is a bad way to describe it, but if there were — then the pendulum has swung dramatically towards development. But that would not mean you rush out and throw away environmental standards and do a whole lot of development because of that. I think you recognise that the attitudes within the community will change as circumstances change. Anything that tries to put a dollar value on something really based on people's attitudes and feelings at the time without their actually putting that dollar out will not be very helpful in the sensible allocation of our resources.

Peter COLLEY: *I would make only one comment on what Stuart Harris said with regard to valuation of resources and implicit valuation. As Stuart Harris probably has nightmares about, there are endless discussions in the mining working group on national parks and assessment of national parks or their further expansion. At times it went over many days. Essentially the argument was that we need a better national park system. The one we now have does not encompass a lot of key ecological values. A lot of those that have been proclaimed have been proclaimed more on the basis of their distance, say, from Sydney and Melbourne than on the basis of their ecological values. The question of how new parks should be decided was viciously argued between environmentalists and industry, with industry, government and the unions*

arguing that we needed assessments of ecological values and of mineral values and of other economic values. The conservation groups argued that that was an incorrect balance in making decisions, and that there should not be resource assessment of proposed national parks. My position is that unless you have that full assessment, we are not getting a full statement of the real values involved and are not getting good public policy-making. I think people should make decisions about national parks, and should make them based on the best possible knowledge of all information. In that way the resources are appropriately valued.

Sustainable Development: International Perspective

*Ponciano S. Intal, Jr**

The challenge of attaining sustainable development has belatedly taken centre stage in numerous discussions worldwide. The challenge is enormous. Facing up to the challenge requires major restructuring of domestic economic policies and international economic arrangements, stronger push for "market enhancing" institutional and administrative reforms, and faster reduction in population growth. Sustainable development has turned out to be the overarching and unifying framework for sound development policy and equity-oriented institutional arrangements. The fundamental issue, however, is whether there is sufficient political will, both domestically and internationally, to effect reforms in policies and institutions consistent with the demands of sustainable development.

THE ROOTS OF UNSUSTAINABILITY

Environmental degradation and resource depletion are serious problems in many developing countries. Canberra is heaven compared to the urban pollution of Manila and Bangkok. Overcrowding and slums are a characteristic feature of major urban cities of the developing world. The forest cover of many developing countries has drastically declined in recent decades, so much so that typhoons have more devastating effects in terms of floods, loss of lives (as recently seen in the tragedy in Ormoc City in the Philippines), and heavy siltation of expensive irrigation systems thereby substantially reducing their economic benefits and viability. The deterioration in the quality of fishery resources has been serious in a number of cases resulting in significant declines in productivity (for example, Laguna de Bay in the Philippines).

The environmental degradation and resource depletion in developing countries have been at times rationalised in the past as necessary costs in the pursuit of economic growth and hence the people of the developing world will have to grin and bear it in the meantime in the course of their countries' industrialisation drives.

We know better now. We now know that a critical reason for the unsustainable "mining" of forestry, fishery, agriculture and mineral resources is the inappropriate pricing of

these resources and their extraction. Thus, for example, the undervaluation of the social cost of logging together with weak enforcement of forestry regulations, especially reforestation requirements, is at the root of the serious forest denudation in countries like the Philippines.

The environmental degradation and resource depletion in developing countries have been at times rationalised in the past as necessary costs in the pursuit of economic growth and hence the people of the developing world will have to grin and bear it in the meantime in the course of their countries' industrialisation drives. We know better now. We now know that a critical reason for the unsustainable "mining" of forestry, fishery, agriculture and mineral resources is the inappropriate pricing of these resources and their extraction.

Undervaluation of the social cost of resource extraction leads to over-exploitation of the resources because of the high economic rents that accrue to the exploiter (that is, rent seeking behaviour). Similarly, underpricing of outputs discourages productivity — and sustainability — enhancing private investments. The latter is an especially important issue for agriculture in developing countries.

Apart from the inadequate pricing of resources and resource extraction, we now know that another critical reason for environmental degradation and resource depletion in many developing countries has been their heavy reliance on resource extraction in their development strategies rather than, given their population growth rates, on enhanced utilisation of human capital.

The Philippines and many other developing countries encouraged capital intensive import-substituting industries, thereby reducing the employment impact of industrial growth. The structure of industrial protection in the developed countries, which is biased against imports of labour intensive manufactures and processed raw materials, has contributed significantly to the continued bias for import

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substituting manufactures in the developing countries. As a result, the rural sector and the urban informal sector of developing countries have borne the brunt of accommodating the growing labour force. Poverty and increased population pressure on existing agricultural land, together with the nearly open access character of uplands and forest lands, have resulted in the surge of the poor population to the uplands and logged-over forest lands to undertake extensive agriculture. Similarly, poverty and population pressure in coastal communities have led to overfishing in a number of open access municipal fishery resources in countries like the Philippines.

Finally, what has aggravated the impact of the increased population pressure on land and natural resources is insecure property rights. For example, most of the upland farmers in the Philippines working on logged-over forest lands do not have security of tenure. Insecurely-held land is also prevalent in Thailand associated with swidden cultivation, in Indonesia associated with spontaneous migration, and in Nepal associated with migration from the hills to the Tarai (Asian Development Bank, 1991). Insecurity of ownership over resources discourages intertemporally efficient use of resources as well as private investments that improve the productivity and sustainability of the land.

PRICING AND INVESTING FOR THE FUTURE

The proper valuation of resources and the social cost of resource extraction and clear delineation of property rights are essential for minimising the trade-off between economic growth and environmental/resource protection. This is easier said than done, however, because the issues of appropriate pricing, property rights and the overall incentive structure for investments in agriculture and natural resources involve a complex set of correlative issues in the design of the implementing policies to encourage correct pricing, fair and effective property rights delineations and private investments in resource regeneration and sustainable farming.

For one, there are the technical problems of quantifying the externalities of resource extraction. Thus, it was only recently that quantification of on-site and off-site effects of forest denudation has been done for the Philippines. This is probably true for other developing countries also. Considering the location specificity of natural resources, the estimation of the social costs of resource extraction will have to be done in many case areas in order that government interventions are appropriate and informed.

The more important issue is the political economy of pricing reform. To correct undervaluation of the social cost of resource extraction, an increase in the effective taxation of extraction or exploitation of natural resources is needed. Politics, however, can derail the process of correct valuation. In the Philippines, for instance, the proposed increase in effective taxation has been delayed and tempered by opposition from lobby groups who have benefited from the extraction of natural resources at low cost.

It may be noted that the politics of resource extraction in the Philippines is that the concessions and licenses to cut timber have been granted primarily to members of the local and national elites. Because of the above-mentioned tech-

nical problems involved in relying solely on differential pricing and because of the influence of lobby groups, the compromise decision in the Philippines was for some increase in effective taxation to reduce the rents from resource extraction and a ban on the exploitation of pre-defined areas (for example, ecologically-fragile areas).

A more difficult political economy issue is agriculture pricing. Food pricing in developing countries has tended to be biased in favour of the more politically vocal urban group. In some African countries, the monopsonistic marketing boards have been notoriously inefficient so much so that the effective taxation of the farmers has been significant. Compounding the historical pricing bias against agriculture in developing countries are the large subsidies to agriculture in developed countries which have depressed world prices of agriculture products. As a result, rural poverty in developing countries remains serious and the incentives to private investment in agriculture are weak in much of the developing world. Not only is there private underinvestment in production support services (for example, water control, fertilizer), there is also private underinvestment in post-harvest facilities resulting in substantial food losses from spoilage and poor handling.

Sustainability of rural development requires correct resource pricing and prosperous agriculture. It is apparent from the above discussion, however, that improving the pricing regime and investment climate for agriculture and the natural resource sector is an enormous challenge indeed. It calls for the phasing out of direct and indirect price discrimination against agriculture in many developing countries as well as the phasing out of agricultural subsidies in the developed countries. It means improving the security of land tenure of farmers and upland dwellers. It may also mean a redirection of developing country governments' expenditure and public investment programs toward providing the infrastructural and technological requirements of sustainable agriculture (for example, rural roads, integrated pest management, more efficient fertilizer application).

REFORMING THE INDUSTRIAL PROTECTION SYSTEM AND IMPROVING THE MACRO-ECONOMIC ENVIRONMENT FOR SUSTAINABLE DEVELOPMENT

Reducing the pressure of population and poverty on agricultural land and natural resources requires that the industrial sector take a larger role in employment creation. This means that developing countries should place a premium on employment creation in their industrial policies. It also means that developed countries should not place trade barriers to the developing countries' harnessing their human capital better.

In other words, sustainable development requires a redirection of the industrial policies and protection systems of both the developing and developed countries to hew their economies more closely to the demands of comparative advantage. Doing this requires reducing the tariff and non-tariff barriers of developed countries against labour-intensive exports of developing countries, elimination of tariff escalation on raw materials in developed countries which discourages imports of processed raw materials from developing countries, and across the board reduction in industrial protection in developing countries. All these can be

expected to result in more efficient and equitable international trade between the developed and developing countries and, perhaps more importantly, increased trading among the developing countries themselves.

Recent international developments augur well for an improved industrial policy regime in many developing countries. There has been a marked trend towards increased economic openness and outwardness in the developing world as highlighted by the remarkable Mexican and Chilean tariff reform programs. Among the ASEAN countries, Indonesia, the Philippines and, lately, Thailand have also reduced tariff and non-tariff barriers. There remains substantial room for improvement, though, in the industrial protection system of the developed countries especially the United States and Western Europe.

Opening the economy to import competition, investments and technological flow is one hallmark of the current consensus on development policy, as presented in the 1991 World Development Report of the World Bank. Another hallmark of the current development policy consensus is the importance of macro-economic stability to sustained growth (and, therefore, to sustainable development). The contrasting experiences in the 1980s of the successful East Asian and Southeast Asian economies that have been characterised by relatively stable macro-economic regimes and those of a number of Latin American economies that have been plagued with macro-economic instability bring out the importance of macro-economic stability to sustained economic growth.

It is an irony though that the decade when sustainable development took centre stage saw many developing countries barely grow due to heavy debt service burden and the deflationary policies which the countries adopted with the aim of attaining macro-economic stability.

There is probably some linkage between the acceleration in the rate of deforestation in Brazil and many African countries during the 1980s relative to the 1970s and the deterioration in the economic performances of these countries. The contrasting experiences in macro-economic management of the Philippines during 1984–1990 and Indonesia during 1983–1987 suggests that the IMF-type orthodox macro-economic stabilisation program imposed on heavily indebted countries has been costly in human welfare terms and not altogether appropriate.

Indonesia is now widely regarded as a success story in macro-economic management and structural reform. A careful evaluation of the Indonesian experience shows that Indonesia benefited from large positive net resource transfers during the critical 1983–1987 adjustment period which allowed the pursuit of a growth-oriented adjustment program and improved the credibility of the many structural reforms undertaken by the Indonesian Government during the period. In contrast, the Philippine Government's efforts at structural reform have been slowed down or negated by the large negative net resource transfers and a sluggish economy.

The Philippine experience during the 1980s is replicated in a number of developing countries in Latin America and Africa. The magnitude of negative net resource transfers from the developing world during the 1980s was very large, resulting in substantial deterioration in per capita income

and adverse effects on the welfare of the vulnerable groups (Cornia et al, 1987).

The contrast between the successful Indonesian experience and the unsuccessful experiences of the Philippines and other heavily-indebted countries in Latin America and Africa indicates that the IMF-type orthodox macro-economic adjustment program imposed on the heavily-indebted developing countries during the 1980s has been too costly in human welfare terms and not altogether totally called for. Specifically, the IMF and the World Bank should have ensured positive net resource transfers or at least a more significant reduction in the negative net resource transfers. Thus, the IMF and the World Bank need to fashion a more vigorous debt relief program to strengthen the sustainability of structural reforms in the heavily-indebted developing countries and reduce the negative effects of the debt overhang on investments in these countries.

It is an irony though that the decade when sustainable development took centre stage saw many developing countries barely grow due to heavy debt service burden and the deflationary policies which the countries adopted with the aim of attaining macro-economic stability.

The importance of debt relief and positive net resource transfers cannot be overemphasised in developing countries like the Philippines where, as a result of pervasive poverty and tight government finances, forests have been destroyed and soil eroded because of the marginal farming practices of the very poor, the needed environmental and sanitation infrastructure are barely provided and maintained, and pollution control facilities are woefully inadequate.

SUSTAINABLE DEVELOPMENT AND GOVERNANCE

The path to sustainable development brings out the importance of equity-oriented institutional and administrative arrangements. Foremost of these are improvement in land tenure, the honouring of ancestral claims by tribal communities to selected areas, decentralisation and devolution of powers from the national agencies to the local government units and offices, and increased reliance on local communities and organisations for monitoring and maintaining the natural resources stock. By addressing the open access and uncertain property rights issues and by providing communities most directly affected by resource extraction and depletion with more responsibility and authority in the management of natural resources, the institutional and administrative framework for resource management is improved.

Sustainable development calls for the integration of environmental and resource constraint considerations in decision-making at the local and national levels. The Philippine experience in the pattern of integration of environmental considerations in development planning and policy-making is probably typical of many developing countries. For example, at first, the government considered its forest

resources almost solely as a source of foreign exchange and land clearing for agriculture. Over time, as deforestation advanced and flooding occurred more frequently in various areas of the country, the government increasingly discouraged forestry exports. Implementation was spotty, however, and both illegal logging and illegal log exports continued. Recently, the Philippine Government formulated a strategy for sustainable development which emphasises proper pricing of natural resources, property rights reform, rehabilitation of degraded ecosystems, integration of environmental considerations in decision-making, strengthening of citizens' participation, and control of population growth, among others. It is clear that it will take some time for implementation fully to take hold.

What this paper brings out, however, is that sustainable development is as much about development as it is about sustainability. Indeed, as was pointed out earlier, lack of development often leads to environmental degradation and resource depletion.

Integrating sustainable development concerns in government decision-making is not easy. One significant step forward in the Philippine case has been the recent stronger cooperation between the government economic planning agency (the NEDA) and the environment and natural resources agency (the DENR) with respect to the evaluation of major public investment projects. Specifically, during my term as Chairman of the Technical Board of the interagency Investment Coordination Committee (the committee that evaluates and approves government projects for official development assistance), environmental impact assessment as a requirement for project evaluation and approval was institutionalised.

There have been other important efforts undertaken by the Philippine Government to improve resource management and promote sustainable development. Among these are community-based forest management under the Integrated

Social Forestry Program, the banning of logging in ecologically-fragile areas, the implementation of selective logging, the construction of artificial reefs, the imposition of an environment fee on timber licenses, and the start of a major forest renewal and rehabilitation program which led for the first time to the rate of reforestation being higher than the rate of deforestation. Nonetheless, much remains to be done to ensure resource sustainability and improved productivity.

CONCLUSION

In the run up to the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, there appears to be a growing emphasis on the global commons and the sharing of adjustment responsibilities among countries in slowing down global warming. Considering that much of the stock of greenhouse gases in the atmosphere was produced by the developed countries and considering that most of the biggest greenhouse gas emitters are developed countries, it is fair that the developed world undertake proportionately larger adjustments for Mother Earth.

What this paper brings out, however, is that sustainable development is as much about development as it is about sustainability. Indeed, as was pointed out earlier, lack of development often leads to environmental degradation and resource depletion. Thus, for many developing countries, UNCED and sustainable development are as much about debt relief and net resource transfers, pricing reform and institutional changes, rural poor and urban slum-dwellers, and easier access to developed countries' (and other developing countries') markets and their environmentally friendly technology.

REFERENCES

- Asian Development Bank (1991). *Asian Economic Outlook 1991*.
 Cornia *et al.* (1987). *Adjustment with a Human Face*, London: Clarendon Press.
 Intal, P. (1991). "Comments on De Haen's 'Environmental Consequences of Agricultural Growth'." Paper presented at the DSE-IFPRI Seminar on "Agricultural Sustainability, Growth, and Poverty Alleviation: Issues and Policies" held at Feldafing, Germany on 23-27 September 1991.

DISCUSSION — III

Rusty Branford, Australian Fisheries Service: *Dr Intal is the first person to raise the issue of population, apart from the standard opening statements of what is to happen in the next 20 years or so. I would be interested to hear whether Dr Intal feels that population is completely integral to ESD as an issue, why it is so absent, and whether it is less absent in the developing world environment.*

Ponciano INTAL: Is the speaker referring to ESD in terms of Australia or the world?

Rusty Branford: *Really for the developing world.*

Ponciano INTAL: There is a growing realisation that population is a major problem. How to tackle it, however, is politically divisive. In the Philippines we do not have a very strong population growth reduction program — at least officially. In view of the fact we have a strong Roman Catholic lobby group, what we have done in the government is to do this via the health side. Hopefully it will have the same impact. We have built in targets related to certain health indicators in regard to women, spacing, and the health of children that would be nearly consistent with the targeted reduction in population growth.

The experience in the developing countries is that you need a very good health system, and to improve the health status of women especially, to ensure that you end up with a sustainable reduction in population growth rate. That has been the experience in some Latin American countries. In Costa Rica, and even in Thailand, by improving the health status of mothers, by reducing the mortality rate, which are primarily experienced in the rural and poor families, you end up with a much lower family size and a much lower fertility rate.

We are doing it less vocally but via the improvement in the health care system. I think that is being done in a number of countries in view of the political sensitivities about population growth.

Mike Waller, Department of the Prime Minister & Cabinet: *I wish to link up with the previous question about population growth. Given the seeming inevitability of a very substantial increase in population over the next 20 to 30 years, I wonder if the Panel has a sense whether the model of growth and economic well-being which we are currently discussing and using as underlying our strategy is one which itself needs fundamentally redefining. I have a sense that even if we moderate the rather excessive use of resources that we currently use in the developed world, even a substantial moderation of that if applied generally to the developing world and its population base would seem to be questionable from a sustainability point of view.*

Ponciano INTAL: I think that it is the essence of my paper, that one has to have a drastic redirection of development strategies of the developing countries. There need to be changes in the policies of developed countries to ensure that the shift towards relying more on human capital — and, let us face it, developing countries have a lot of human capital, which is under-utilised. This means substantially changing the industrial policies of developed countries.

Equally — and I think that this is something that many developing country economies have not yet realised — by the current process of opening up many of the developing countries in terms of their markets, making them more competitive, it is possible that later they will end up with a lot more developments among the developing countries — south-south cooperation and south-south international trade. When you do that, the developing countries will have less emphasis on calling on the developed countries in terms of aid and policy change.

In a way, as I have stated, if you want sustainability, you need that restructuring. But in the interim it equally requires some realignment of industrial policies in the developed countries. As the internal economies of the developing countries improve with their markets more open, most of the incremental new trade will be among themselves. Apart from population growth control programs, a much higher level of income will drastically reduce population growth. By relying more on the industrial sector, on human capital and labour-intensive manufactures in these countries, together with an improvement in population growth control programs, it is possible that you will end up with a far lower world population growth rate than is generally projected.

What is the Development Debate about? — I

*Michael Krockenberger**

The development debate is between two very different world views:

- One believes and argues that we *must* control all those parts of nature that are of use to us.

- The other believes and argues that we *can* work with some parts of nature that benefit us.

The first of these views presupposes that no resources or parts of the environment be left untouched unless they are of no use; the second view argues that not all resources need be used by humans (though they may be of use in an indirect way).

Thus the development debate can be seen as a power struggle between an ideology that has largely gone unquestioned, the development ethic, and its critics.

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Resource industries and their supporters in government are currently finding scapegoats because their policies of over-reliance on a large capital and resource-intensive style economy, "quarry Australia", are no longer working. The economic indicators of a failed strategy are obvious: unemployment, recession and a huge trade deficit. This over-reliance has inhibited an economy based on ecological sustainability.

Resource industries and their supporters in government are currently finding scapegoats because their policies of over-reliance on a large capital and resource intensive style economy, "quarry Australia", are no longer working. The economic indicators of a failed strategy are obvious: unemployment, recession and a huge trade deficit. This over-reliance has inhibited an economy based on ecological sustainability.

The resource industries and their supporters have two latter-day scapegoats, Aborigines and greenies, who have replaced the trade union movement, which was the scapegoat in the late 1970s and early 1980s. In fact, virtually all the projects alleged to be held up by so-called green tape and black tape are projects delayed for financial reasons or not being held up at all. Some industry proponents, through calls for "fast-tracking", appear to be attempting to utilise an opportunity to by-pass what are quite reasonable environmental and cultural safeguards.

Scapegoating is particularly evident where the timber industry has blamed greenies for lack of timber industry development and falling employment. Yet the Resource Assessment Commission could find no example of sustainable forestry and commented:

Australia's native forests have been overcut in most states causing an impending shortage in the supply of hardwood sawlogs ... and this prolonged overcutting and not the inclusion of timber-producing areas in national parks and conservation reserves appears to be the main cause of the dwindling supply.

The proposed Resource Security legislation is really a last ditch attempt to continue and rationalise entrenched native forest exploitative practices. The industry is seeking access to the last old-growth forests in this "window of opportunity" before plantations take over as the source of pulp and timber.

As the Resource Assessment Commission has said:

Australia is in the process of restructuring an industry from one that is labour intensive and based on old-growth forest hardwood to one that is equipment-intensive and based on plantation softwood.

However, greenies cop the blame for an industry gone wrong.

The Australian Conservation Foundation (ACF) believes we should take the best from the Australian economy, discard the worst from the past and build a better future. There is an opportunity to make an economy that is "Green, Dynamic and Prosperous".

Australia could target sustainable forestry, for instance. This may involve import replacement, value-adding production of pulp and paper using medium scale, non-polluting mills. Such mills can be profitably based on plantations with the benefit of diversifying regional economies, tackling land degradation and protecting native forests.

The debate is about all these things thrown into a stew with plenty of other spice. ACF has taken part in this debate for 25 years, and in the last several years has perhaps been a major player, advocating "ecologically sustainable development".

The Government's 1990 ESD process brought together the major players and sought to find common ground. It identified significant agreement in many areas but it also hit some fundamental stumbling blocks. These are the differences in values held by different parties.

ACF approached the exercise with a set of guiding principles from which the development policy framework must evolve. These include:

- International equity (looking after future generations)
- Conservation of biodiversity and ecological integrity (looking after the fabric of life on earth)
- Constant natural capital (using natural resources, for example, soil, water, but not depleting them)
- Precautionary approach (erring on the side of caution with respect to environmental impact)
- Social equity (looking after others)
- Qualitative development (better, not necessarily more; development, not necessarily growth)
- Global perspective (Australia is not an island in the broadest ecological and economic sense)
- Community participation (we are all partners in development)
- Resilience (diversity in the economy keeps it strong)
- External balance (debt places pressures on the environment).

These form an ecological and social bottom line from which to build.

Differences in values prevail, however, between conservationists and some industry representatives, most importantly:

- the difference between conserving biodiversity and ecological integrity and minimising its loss; and

- the precautionary principle versus the permissive approach.

In the case of the former, some industry representatives maintain that extinctions are natural (which is true) and therefore equate the current human-caused accelerated extinctions with these natural extinctions (which is false). They then maintain that extinctions are acceptable if economic gains are made. We fundamentally reject this, even to the extent that an economic gain is never made if a species is driven to extinction.

In the case of the latter, some industry representatives maintain that we should be cautious with the economy, not the environment, and that the burden of proof should be on those who attempt to inhibit unrestrained development, not on those who impact on the environment.

This, however, neglects the fact that impacts on the environment may be irreversible, whilst impacts on the economy can be severe but are not fundamentally irreversible.

The ESD process has not been a panacea but then nobody expected it to be. It has been a shaky first step. The test now is to see if the Government has the nerve to go further whilst distracted by a recession.

The ESD process has resulted in a vast swag of recommendations. Most of them are good recommendations, but most do not go anywhere near far enough. This is the result of the process which did not sufficiently allow for problem-solving.

To further the development debate beyond its current confines, the Government must put in place policy that extends the results of the ESD process. A number of factors could stop this, or a future, government from taking sufficient steps.

1. "New Federalism" and "States' rights" devolving environmental powers to parochial and poorly coordinated State agencies.

2. Knee-jerk reactions such as resource security legislation or fast-tracking projects.
3. Some false notion of balance between the economy and the environment, treating these issues like they are in competition for favours, when in fact they depend on each other.
4. Perception of changes in public opinion against environmental protection (which have not changed).
5. An ideological approach to economics that places an over-reliance on market mechanisms. A *sensible* mixture of market and regulation is needed.
6. Counter-productive policy decisions in an apparently unrelated context, such as the proposed goods & services tax package lowering the price of petrol to the detriment of the environment.
7. Lack of will to carry through institutional and legislative reforms, such as the proposed Commonwealth Environmental Protection Authority and the Threatened Species legislation.
8. Further marginalisation of minority groups such as overriding Aboriginal wishes.
9. Government departments watering down already weak recommendations to protect their empires.

The ACF considers itself a partner in the development of the development debate. These issues must be addressed in a community context. We are working on the solutions in areas such as land degradation, energy planning and forestry policy. We use economics in our policy formulation but set it on a bottom line thereby recognising it as a subset of the main game, ecological sustainability.

What is the Development Debate about? — II

John Stone*

The question which my fellow panelists and I are asked to address is: "What is the Development Debate Really About?"

In 15 minutes I cannot explore that question in the depth which it deserves. I therefore propose to address it briefly from three aspects:

- Why do people like myself feel that economic development is really important?
- Is there any genuine basis, as distinct from much trumped-up emotion, for the view that economic development, on the one hand, and genuine concern for the environment, on the other, are at loggerheads?
- What, if any, "hidden agenda" lies behind the activities of the environmental activists? What are they *really* on about?

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It is 18 months now since the Commonwealth Government published its discussion paper on Ecologically Sustainable

Development. That paper bore all the marks of having been drafted by a committee, being distinguishable, like all such horses, by its hump. In the interim, some 133 no doubt very able people, in nine separate working groups, have occupied themselves — chiefly at public expense — in producing reports which, in some sense fittingly, were not even available in time to be absorbed before this conference.

I say “in some sense fittingly” because, to tell the truth, none of the views being presented here today — including my own — would have been much different even if they had been.

Anyone who believes that Australia can dig itself out of its present hole — a hole we have steadily dug for ourselves over the years — without exploiting to the utmost the great natural advantages which we possess in the area of mining, is simply engaging in fantasy. Worse still — and I cannot over-emphasise this point — anyone holding such a view is implicitly saying that a large number of Australians can and should bear the pains of high unemployment and falling living standards for many years more than they will now have to do in any case.

In short, we have seen a classic example of the bureaucratic process, flourishing and multiplying, principally in Canberra, while the real Australia has been steadily going to hell on a rail.

Nothing could provide more vividly the backdrop to my first question, namely, why do people like myself feel that economic development is really important?

This is not the place for, nor would time permit, any lengthy excursion into the detail of Australia's economic ills today. If only, however, to inject a note of reality into today's proceedings, let me state at least the chief of them briefly:

- During the ten years ended last June, the (net) indebtedness of Australians to foreigners increased from \$8.6 billion to \$130.3 billion, or from 6.1 per cent of our Gross Domestic Product (GDP) to 34.3 per cent.
- During that same period our total (net) foreign liabilities — that is, (net) foreign ownership of Australian property or other assets as well as of debt instruments — rose from \$32.7 billion to \$176.6 billion, or from 23.3 per cent to 46.5 per cent of GDP.
- In 1990–91 net property income payable abroad — that is, the sum of all interest, dividends, rents, etc. payable on foreign owned assets *less* the sum of such property income accruing to Australians from their investments abroad — totalled \$17.7 billion, compared to \$2.5 billion ten years earlier. This net property income payable

abroad in 1990–91 more than accounted for the whole of our current account deficit on the balance of payments in that year.

- In April, 1988, when the then Treasurer (Paul Keating) began raising interest rates, he did so to “cool off” an economy which was then generating a current account deficit on the balance of payments amounting to roughly 4.2 per cent of GDP — a clearly non-sustainable level.
- I am not here to analyse the pros and cons of Mr Keating's actions in 1988 and 1989. I mention them only to make the point — which I think is undeniable — that our present recession has its immediate genesis in those actions, and that they were taken in order to deal with, finally, a balance of payments-cum-foreign liabilities situation which had simply become untenable.
- As a consequence, between December, 1989 and October, 1991, the level of *recorded* unemployment has risen by 365,000 (seasonally adjusted).
- Between July 1990, when the number of people actually in jobs began to fall, and October 1991, the number of jobs actually shrank by 250,000.
- The recorded unemployment rate has now risen from 5.9 per cent of the work-force in December, 1989 — which was already a level which a civilised country should have regarded as unacceptable — to 10.1 per cent of the work-force in October 1991.
- This is despite the fact that, during that period, the work-force participation rate — that is, the proportion of persons aged 15 and over actually offering for work — fell from 63.5 per cent to 63.0 per cent. Had it not been for that fall — which is to say, that rise in the numbers of so-called “discouraged workers” — another 68,000 persons would have been recorded as unemployed in October, and the unemployment rate then would have been, not 10.1 per cent, but 10.8 per cent.
- Despite the fact that, as those figures indicate, we have been passing through a severe recession, the balance of payments deficit on current account for the 12 months ended September 1991 remained at \$14.9 billion, or 3.9 per cent of GDP. That is, it was *still* almost as high as the level (4.2 per cent) which had, quite rightly, been regarded as unsustainable three and a half years earlier.
- And, finally, one last statistic which, given the undying hostility of the environmental activists toward mining (or indeed any other) developments, is of particular relevance: in the 12 months ended September 1991, some 52 per cent of Australia's merchandise exports, and some 42 per cent of our total exports of goods and services, consisted of the products of our mining industry (metal ores and minerals, mineral fuels and metals).

Against that background, let me now answer my first question.

The reason why I feel that economic development (and hence the development debate surrounding it) is really important, is this. Anyone who believes that Australia can dig itself out of its present hole — a hole we have steadily dug for ourselves over the years — without exploiting to

the utmost the great natural advantages which we possess in the area of mining, is simply engaging in fantasy. Worse still — and I cannot over-emphasise this point — anyone holding such a view is implicitly saying that a large number of Australians can and should bear the pains of high unemployment and falling living standards for many years more than they will now have to do in any case.

Given that quite inescapable reality, I come to my second question: is there any genuine basis, as distinct from much trumped-up emotion, for the view that economic development on the one hand, and genuine concern for the environment on the other, are at loggerheads?

It is easy to point to particular examples of despoliation of the environment resulting from some aspect or other of economic development. Most of these — such as some residual hole in the ground resulting from a mining operation — are usually trivial in their real environmental significance; others are more serious.

Yet any thoughtful, as distinct from emotional, survey of the relationship between the environment and economic development does not bear out the truth of the supposed “clash” between them. On the contrary, we find that “so far from opposing economic growth, those with a true concern for the environment should be supporting policies for maximising it and, in particular, policies for enhancing the role of private property rights in its protection”. (IPA Current Issues document: *The Environment in Perspective*, September, 1991.)

Perhaps I can indicate most succinctly the false antithesis I have in mind by referring to a paper by Dr Clive Hamilton, of the Resource Assessment Commission, published in this issue of *CBPA*.

In expressing his general lack of enthusiasm for the initial Commonwealth ESD discussion paper, Dr Hamilton accuses it of having “fudged the fundamental issue of conflict over resource use”, and laments the fact that “nowhere does it discuss the root question of what the social goals of ESD are or should be”. He concludes:

Put starkly, the paper does not tackle the issue of what sort of society we want — David Suzuki’s or Alan Bond’s.

Nothing could better illustrate the “black and black” extremism of choice between which the Clive Hamiltons of this world would have us believe we have to choose. This truth is that the great majority of Australians want neither the world of intellectual rubbish so well symbolised by Suzuki’s charlatanism, nor the world of non-intellectual rubbish so grossly symbolised by Alan Bond’s vulgarity. Nor — and this is the point — do we have to have either.

All the evidence is that it is the high growth countries which find it politically easiest to allocate some of their growth in product to caring for their environments, whereas lower growth, and still more stagnant, societies find it much more difficult or impossible to do so.

Interestingly, the deduction that our only choice is between Suzuki stagnation or Bond boosterism is not the only delusion under which Dr Hamilton seems to be labouring. Early on in his paper he says that:

Environmental concerns have been *foremost* in the minds of voters for several years and have caused governments to fall. [Emphasis added]

I am unaware of any Australian government, State or Commonwealth, which could be said to have fallen on the basis of “environmental concerns”, and I therefore wonder what evidence Dr Hamilton would advance for that proposition.

Apart from that, however, there is that word “foremost”, which my dictionary defines as “first in place or order”. As it happens, as I was reading this claim by Dr Hamilton last week, there came onto my desk the latest Morgan Gallup poll, taken in September 1991, in which those interviewed were asked: “What are the most important things you believe the Federal Government should do something about?” The answers are revealing: they do not, I fear, substantiate Dr Hamilton’s claim. In order of ranking, they were:

Percentage Responding

1. Reduce unemployment	63
2. Increase welfare	28
3. Promote business/industry	22
4. Stabilise the economy	20
5. Conservation, environment	14

I note also that the fifth-ranked issue, “conservation, environment” has been steadily *falling* as an issue of concern to those interviewed by the Morgan Gallup pollsters over the past two years. In June, 1989 it was mentioned by 26 per cent of respondents, and has fallen through the seven subsequent polls to 14 per cent in September 1991. Foremost?

Coincidentally, an article in the same issue of *The Bulletin* entitled “Who Will Pay for the Eco-car?” notes that:

Local market research shows that, despite a surge of interest in green issues in developed countries, the environment barely rates as a factor when it comes to buying a new car. Performance, comfort, quality and price are still the key issues for most consumers.

If this is so — and market research is, after all, carried out by people who have a keen financial interest in finding out what actually *does* make people tick, and not just what they say to “contingent valuation” surveyors in order to appear “politically correct” — how does it come about that so much energy has been expended in Canberra in the ESD process in dealing with an issue which seems to be far from “foremost” in peoples’ minds? One answer might be, as Dr Hamilton also notes, that “a clear majority of working group members were public servants” — none of whose jobs would be at risk even if the wrong conclusions were arrived at.

That brings me to my third question: What, if any, “hidden agenda” lies behind the activities of the environmental activists? What are they *really* on about?

In truth, the agenda is not so much “hidden” as pretty clear. It was spelled out at some length in a clever, and, in some respects, amusing speech in 1990 by the Executive Director of the Australian Conservation Foundation, Mr

Phillip Toyne, entitled "Australia in 2010: A Letter to the Prime Minister on the Progress of Sustainable Development Initiatives".

There is no time here to examine Mr Toyne's "agenda" in detail. Let me simply say that he clearly wishes to see "a wholesale process of environmental law-making, including constitutional change designed to widen even further the powers of central government in Canberra in that regard. This law-making would provide 'a framework within which land management and land allocation decisions could be made'; establish 'an optimal rate of depletion of Australia's fixed material assets such as minerals'; establish 'minimum (energy use) efficiency standards for all domestic purposes' (to be 'progressively tightened' over time); establish a set of 'broadly based environmental taxes and charges'; and so on. In short, Mr Toyne's speech lays out a blueprint for a centrally planned economy. The fact that he at one point denies this does not alter that reality". (IPA Current Issues document: *op cit*, page 40)

Against that background, it is fascinating to see the new arch-priest of the environmental activists, Dr Hamilton, laying down an essentially similar line in that same paper from which I have already quoted. For example:

The ESD process represents a watershed in Australian government policy-making every bit as important as the establishment of the welfare state.

And, he might have added, with the capacity to be every bit as disastrous.

There is much, much more in the same old-style socialist vein; but time does not permit me to draw it out at length. Dr Hamilton's paper should, however, be required reading for anyone who wishes to know what the environmental activists are *really* seeking.

Let me conclude therefore with a quote from the November 1991 issue of the ESD Newsletter which, reporting on the completion of the so-called "community consultation phase of the ESD process", drew this central conclusion:

Attitudinal change is considered all important . . . The idea of shifting from an emphasis on the individual to a community orientation was often expressed. So too was the need to engender [read: engineer] a feeling of custodianship rather than ownership of land, and an expressed desire for a more simplistic (sic) and frugal ethic.

What could better express the nostalgic vapourings of the 19th Century Ruskinites, or the Keir Hardies of the same era? But however that may be, the authors of this mushy moralising will doubtless be glad to know that, when it comes to achieving that "more simplistic (sic) and frugal ethic" for which they hanker, some 800,000 unemployed Australians are already showing the way!

Sustainable Development and the Politics of Language

Robyn Eckersley*

THE NEW IDEOLOGICAL BATTLEGROUND

The thawing of the Cold War has prompted considerable speculation about the possibility of a new world order that is not only peaceful but also sustainable. Lester Brown, for example, in the 1991 *State of the World Report*, has suggested that "the battle to save the planet will replace the battle over ideology as the organizing theme of the new world order" (Brown 1991, 3). For the first time, Brown suggests, nations can unite around common interests and environmental sustainability will become the common goal (Brown 1991, 18).

It is indeed the case that sustainable development has become the central organising theme in the international environment and development debate in the wake of the publication of the Brundtland Report in 1987. Yet the battle to save the planet — as manifested in the commitment to

sustainable development — promises not so much to *replace* the ideological debate as to *constitute* the new ideological debate. This is because the concept of sustainable development has all the characteristics of what William E. Connolly, drawing on the work of W.B. Gallie, has called an "essentially contested concept" (Connolly 1983, 10). That is, the concept refers to a desired state of affairs; it embraces a cluster of ideas; political protagonists may agree on some or all of these ideas but they may disagree in terms of the meaning or emphasis to be given to some or all of them; and the rules concerning the applicability of the concept to different situations are relatively open.

Although essentially contested concepts are hotly disputed in terms of their meaning and application they are nonetheless widely enlisted as rallying points in political argument. This is because there exists a significant measure of consensus within a political community that at least some of the ideas embedded in the concept are in some sense desirable. It is precisely the "appealing ambiguity" of essentially contested concepts that ensures their staying power in political argument.

Essentially contested concepts can thus be made to serve an ideological function (in a loose Marxist sense). That is, they can be employed to legitimate, mystify, appease and

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console without necessarily being the harbinger of anything particularly new or environmentally benign. Use of such terms can also serve to shift political debate from what are essentially arguments about the "good life" to arguments about the meaning, scope and applicability of particular terms.

Yet there is also a positive side to the "appealing ambiguity" of essentially contested concepts. Not only can such ambiguity be exploited to legitimate dubious practices; it can also provide the basis for continuing dialogue between political protagonists who normally communicate at cross purposes. This has certainly been the hope of the Commonwealth Government in its commitment to sustainable development — a hope that a common language might open up a space for the discovery of a greater measure of common ground between hostile parties. Whether the common language of sustainable development will ultimately lead to the badly needed ecological and economic restructuring in Australia depends, among other things, on the degree of popularity of the general concept, on the one hand, and the degree of contestability of its many dimensions, on the other hand.

IN THE WAKE OF BRUNDTLAND

The influential Brundtland Report (WCED 1987) has succeeded in making sustainable development a major rallying point in international environment and development debates. Indeed, the findings of the Brundtland Commission have now been endorsed by a majority of world governments, all the major international institutions and key non-governmental organisations as providing the basis for future policy making (Brundtland 1990, xiii). This resounding endorsement has culminated in the forthcoming Earth Summit (that is, the United Nations Conference on Environment and Development) to be held in Brazil in June 1992.

The extraordinary influence of the Brundtland Report can, in turn, be attributed to a range of factors, including the shortcomings of the first World Conservation Strategy; the timeliness of the Brundtland Report's publication in view of the increasing urgency of the global ecological crisis; the sober, comprehensive and compelling nature of the Brundtland Commission's assessment of the ecological evidence; the hope and optimism it offered by comparison to some of the earlier, somewhat gloomy limits-to-growth publications; the status of the members of the Brundtland Commission; and, above all, in the widespread appeal and flexibility of the Brundtland Commission's principles and recommendations.

Unlike many of the earlier analyses of global trends in population, resource consumption and environmental degradation (such as the limits-to-growth publications of the early 1970s), the Brundtland Report did not argue for a cessation or curbing of economic growth. Instead, it argued that economic growth (albeit of a more equitable, efficient and environmentally friendly kind) was *necessary* in order to achieve the goal of sustainable development. Moreover, in the hands of the Brundtland Commission, the notion of sustainable development has become synonymous not only with enlightened ecological management but also with participatory democracy and distributive justice for present and future generations. *In short, the Brundtland Report succeeded in offering something for everyone — a feat that has enabled so many political players to enlist Brundtland*

principles (while continuing to talk at cross purposes). To highlight the mixed messages in the Brundtland Report is not to denigrate the remarkable achievements of the Report, but merely to draw attention to the opportunity for *selective appropriation* of Brundtland principles and recommendations by "interested parties".

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THE "APPEALING AMBIGUITY" OF SUSTAINABLE DEVELOPMENT

The Commonwealth Labor Government's commitment to sustainable development — contained in the environment statement "Our Country Our Future" (Hawke 1989) — cast the dye in the Australian environment and development debates. Indeed, it could be said that the events set in train by this statement — particularly the establishment of the nine ecologically sustainable development (ESD) committees — have literally forced a sustainable development dialogue in Australia between parties that do not normally talk to each other (other than through the media).

That the environment movement should embrace the concept of sustainable development is hardly surprising. After all, the Brundtland Report merely encapsulated, and lent respectability to, a range of arguments that have been on the agenda of the modern environment movement for well over two decades. This is not to suggest that the Brundtland Report's flexible formulation of sustainable development, and the Commonwealth Government's ESD process, have been uniformly endorsed by the exceedingly heterogeneous environment movement. Indeed, two of the key environment groups in Australia (the Wilderness Society and Greenpeace) declined to participate in the ESD process, largely as a result of the Commonwealth Government's decision to enact "resource security legislation" to attract investment in large-scale resource based industries (which was seen to make a mockery of the ESD process). The Australian Conservation Foundation (by a close vote) decided to stay in the process and has provided the major "green" input into the ESD committees.

That business groups should also embrace the concept is not surprising in light of the Brundtland Report's central argument that economic growth and environmental protection are compatible, indeed, that economic growth is necessary to achieve sustainable development. The active promotion of this aspect of the Brundtland Report on the part of the business community has led to a kind of

language speciation as the notion of "sustainable economic growth" has increasingly been favoured over the original notion of "sustainable development".

That other parties, such as union and welfare groups, have also supped at the ESD table has more to do with their need to safeguard threatened ground than a need to shift the terms of debate. After all, these groups have less mileage to gain from promoting the concept of sustainable development (by comparison to the business and green constituency) and hence less of a stake in the definitional struggle. However, both union and welfare groups have a stake in defending hard won institutional gains and/or ensuring that existing inequities are redressed, and new inequities are not created, in the transition towards a sustainable society.

That the Government should decide to endorse the principle of sustainable development can be explained, as we have seen, in terms of its need to find a way out of the seemingly intractable and highly polarised environment conflicts in Australia — conflicts that exemplify some of the contradictions facing the modern state. In particular, public concern over environmental problems has continued to defy what Anthony Downs has called the "issue-attention cycle" (Downs 1972). The enduring nature of such concern (which reflects the intractable nature of ecological problems) requires more far reaching changes than past efforts at cosmetic policy surgery have been able to provide. In the wake of Brundtland, it is becoming increasingly difficult to regard environmental protection as an afterthought or luxury item on the political agenda.

Yet the ecological crisis provides an example of the contradictory imperatives facing the modern state. On the one hand, the state has an institutional self-interest in safeguarding the interests of capital, not because of any conspiracy but rather because of its functional dependence on the flow of resources that private capital provides. On the other hand, it must redress the negative social and ecological externalities generated by private capital accumulation (or by the activities of its own instrumentalities). However, any concerted attempt to regulate private investment and management decisions to a point where these externalities are eliminated would be deeply inimical to the interests of private capital and likely to lead to a capital flight.

These contradictory imperatives (to appease public concern over ecological degradation, to maintain private capital accumulation and redress social unrest arising from the negative externalities of private capital accumulation) are not resolvable in a way that is satisfactory to both the business community and the environment movement. After all, the state is always faced with more demands than can be satisfied. Such contradictions can nevertheless be *managed* "at the margins" — a feat that requires, *inter alia*, the exercise of a certain strategic intelligence. It is here that attention can be turned to the politics of language, to the need to appease, and to build an "effective consensus" between those groups whose support is vital to the "untroubled continuity of the existing order" (Held and Krieger 1983, 498). Faced with the need to redress Australia's declining international competitiveness and boost investment confidence, on the one hand, and growing environmental awareness coupled with the continuing political potency of the green lobby, on the other hand, sustainable development offered the Commonwealth Government the

prospect of developing at least a semblance of consensus between hitherto deeply hostile parties.

As we have seen, it is precisely the "appealing ambiguity" of the concept of sustainable development that has ensured its staying power in the environment and development debates. Yet while such concepts might serve initially to shift political debate from what are essentially arguments about the "good life" to arguments about the meaning, scope and applicability of particular terms, protracted discussion of this kind will inevitably lead back to debates about the "good life". After all, the concept of sustainable development presupposes a *normative* orientation in respect of a number of fundamental questions: What is it that we wish to sustain? For whom do we wish to sustain it? How and when (that is, according to what time frame) do we wish to sustain it?

THE MINIMAL AND MAXIMAL INTERPRETATIONS

Although the sustainable development debate has generated a wide range of interpretations, it will be useful to narrow discussion down to the major competing interpretations offered by the two major protagonists: the business lobby and the environment lobby. As we have seen, it is these two groups that have staked out the parameters of the debate by providing what might be characterised as the Minimal and Maximal interpretations of sustainable development. These contrasting interpretations readily map on to what environmental philosophers have identified as the most fundamental cleavage within modern environmental thought, namely that between an anthropocentric (human-centred) environmental perspective and an ecocentric (ecology-centred) environmental perspective.

An anthropocentric environmental perspective rejects the idea of ecological or social limits to growth and places strong faith in human ingenuity and "technological fixes". It also places a strong emphasis on material values and is primarily concerned to maximise economic output. Moreover, the motivation for any kind of environmental restraint rests on the assumption that humans are the centre of value and meaning in the world, and that the rest of nature is essentially raw material to be bent to human purpose. An ecocentric environmental perspective, in contrast, emphasises the ecological and social limits to growth and the limits to human understanding and human technological expertise. It seeks to minimise the material/energy throughput in the economy to a point where human society can live comfortably within the carrying capacity of ecosystems. Moreover, it seeks to place greater emphasis on "quality of life" issues and it values non-human life not just for its use value to humans (both material and non-material) but also for its own sake.

These contrasting environmental perspectives give rise to fundamentally different approaches to economic development, human population growth, wilderness, technology and risk assessment, and social and political organisation. Not surprisingly, they generate contrasting interpretations of sustainable development. For example, Minimalists accept (in principle at least) the need for the "wise-use" or scientific management of natural resources (for example, timber and fisheries) to achieve the optimal (read highest possible) sustainable yield. However, their concern is to

ensure not only that natural resources are not depleted over time but also that waste is eliminated and the efficiency of harvesting practices maximised. In other words, it is a *total-use* approach according to which it is just as wasteful to exploit resources inefficiently as it is *not* to exploit them at all. For example, the International Chamber of Commerce has stated in its publication *Sustainable Development — the Business Approach* that:

Sustainable development calls for us to look at natural resources in the same way as we would look at a viable business; to get the optimum profit, or yield, whilst keeping the business assets intact or expanding. Environmentally sustainable development is just the same: getting as much as we can from our natural resources, the sustainable yield, without undermining the resource base. (quoted in Pearce, 1989, 121)

Similarly, although the Business Council of Australia in its discussion paper "Achieving Sustainable Development" (BCA 1990) endorsed the Brundtland formula concerning intergenerational equity, it also emphasised the need for continued economic growth as the "means of rectifying the problems in the environment" (BCA 1990, 33). Predictably, the discussion paper laid special emphasis on the importance of improvements in efficiency and management practices in the use of natural resources; on the importance of human technical ingenuity and the scope for substituting natural with human-made capital; on the need for settled environmental standards; and on the need for an evolutionary rather than radical change in policy direction.

The Maximal interpretation, in contrast, seeks to give primacy to ecological considerations, to widen the range of values that are considered (that is, both non-material as well as material) and to widen in space and time the class of beings whose interests are taken into account (for example, Third World countries, future generations, and non-human species). Examples of the Maximal interpretation can be found in the report on Ecologically Sustainable Development published by the Australian Conservation Foundation (in conjunction with Greenpeace, the Wilderness Society and the World Wide Fund for Nature) in August 1990 (ACF et al 1990), and, more recently, in the second World Conservation Strategy released in October 1991 (IUCN, UNEP and WWF 1991).

Although there are many areas of differences between the Minimal and Maximal interpretations of sustainable development (as one would expect with any essentially contested political concept), perhaps the fundamental point of dispute concerns the priority to be given to ecological and economic considerations. In short, which is to be the cart and which is to be the horse: sustainable economy or sustainable ecology? Whereas the Minimalists insist that a robust and growing economy is a prerequisite for sound environmental management, the Maximalists insist that a healthy, diverse and resilient environment is a prerequisite for a sustainable economy. Of course, the Brundtland Report argued (at least in principle) that both ecological and economic sustainability must ultimately go hand in hand. However, despite this more appealing case for the integration of ecological and economic management and despite the Brundtland Commission's defence of the lofty principles of intra- and inter-generational equity, its recommendation of a revitalisation of world economic growth (to enable Third World nations to trade their way toward a more

secure future) indicated that it was to be the economic horse that would pull the ecological cart toward a sustainable future during the transition period. This recommendation has proved to be a major bone of contention for environment groups and has been criticised as a recipe for exacerbating rather than alleviating poverty and environmental degradation (for example, Jacob, 1988; Rees 1990).

The contradictions between the Brundtland Commission's theory and practice of sustainable development are now manifest in the seemingly irreconcilable positions of the Minimal and Maximal interpretations of sustainable development. Indeed, it is likely that these opposing positions will become even more sharply drawn as the focus increasingly shifts from debate about general principle to debate about the more difficult questions of transition. For example, what and how much can be traded-off in the short term to achieve the much vaunted long term integration of economy and environment? What institutional forms and what kind of administrative and intergovernmental framework will best realise the goal of sustainable society? The answers to many of these questions will be foreshadowed in whatever working definition of sustainable development is adopted.

Defenders of the Maximal approach maintain that if the Minimal interpretation of sustainable development prevails, and if this concept is operationalised via traditional administrative means, then Australia's ecological and ultimately its economic problems will be exacerbated. In contrast, if the more ambitious Maximal interpretation is adopted and if this concept is implemented through innovative institutions that are capable of addressing the systemic nature of ecological problems, then Australia will become exemplary leader in the practice of sustainable development. However, the economic rationalist defenders of the Minimal approach maintain that such an ambitious strategy would undermine Australia's economic competitiveness and lead to a lower standard of living. The current recession and the particular constellation of economic and political power in Australia suggests that the Commonwealth Government is more likely to follow a Minimalist scenario. Indeed, we shall see that the possibility of anything approximating a Maximalist scenario was headed off at the start through the particular structure and composition of the ESD committees, which conformed to traditional administrative divisions.

THE BUREAUCRACY: FROM GREY TO GREEN?

There is now a growing literature pointing to a fundamental incompatibility between traditional bureaucratic rationality and ecological rationality (defined by Dryzek as the capability of ecosystems to provide consistently and effectively the good of life-support). Indeed, some observers have suggested that the environmental crisis has given rise to an institutional crisis (Bartlett 1990, 82). As John Dryzek points out, ecological problems are *inherently complex, nonreducible, variable, uncertain, spontaneous, and collective in nature* (Dryzek 1987, 26–33). This understanding of ecological problems has been demonstrated by chaos theory, which underscores the fact that natural systems are non-linear, dynamical systems that do not respond to increasing perturbations in predictable ways. Indeed, chaos theory confirms the inherent unpredictability of such systems,

which calls for, among other things, caution in risk assessment.

Bureaucratic rationality, however, conforms to an instrumental-analytic mode of reasoning which is operationalised via a hierarchical and pyramidal organisational structure. Bureaucratic rationality is concerned to devise efficient means for achieving stated ends through problem decomposition and allocation, rule-bound behaviour, specialisation and routinisation, and a top-down chain of command (Dryzek 1987, chapter 8). The rigid nature of traditional bureaucratic structures does not allow for sufficient interactions across the boundaries of administrative subsets, which often leads to problem displacement and an inability to respond swiftly and creatively to changed circumstance (especially negative feedback). While modern government departments in Australia do not necessarily all conform exactly to this traditional Weberian ideal type of bureaucracy, they nonetheless approximate it in varying degrees and therefore lack the requisite capacity to respond to the special nature of ecological problems (especially in light of what Michael Pusey has called "the locust strike of economic rationalism" that has taken hold in the upper echelons of the Canberra bureaucracy [Pusey 1991, 1]). Indeed, when traditional administrative rationality is pressed into the service of an aggressive economic rationalism, the administrative system's inability to respond to ecological problems is transformed into an effective inability to even *recognise* their existence.

... the process of ESD consultation and policy development in Australia has already been unduly circumscribed by the existing hierarchy of Commonwealth government departments. This is illustrated, for example, by the fact that the working group divisions were established on the basis of traditional industry and administrative lines and that senior officers from development-oriented departments outnumbered all other government and community representatives on the ESD committees (Hamilton 1992). The ESD committee composition and process has, from the start, lessened the scope for a creative response to intersectoral issues such as population growth, the greenhouse effect and biodiversity.

Moreover, the process of ESD consultation and policy development in Australia has already been unduly circumscribed by the existing hierarchy of Commonwealth government departments. This is illustrated, for example, by the fact that the working group divisions were established on the basis of traditional industry and administrative lines and that senior officers from development-oriented departments outnumbered all other government and community representatives on the ESD committees (Hamilton 1992).

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WHITHER ESD?

The long term resolution of ecological problems requires the relocation of ecological considerations from the periphery to the centre of governmental decision-making. Some of the major new initiatives that have been proposed to bring about this relocation include:

- (i) the reordering of the current ministerial portfolio and government departmental pecking order to ensure that ecological considerations are given greater priority and thoroughly integrated into executive decision-making;
- (ii) an improved administrative framework that allows for much more flexible, collegial and consultative forms of communication. The proposal for an office of ESD to coordinate the implementation of a sustainable development strategy within the Commonwealth bureaucracy, between the Commonwealth and the States and within the community (Hamilton 1992, 70) is a promising step in this direction;
- (iii) an improved intergovernmental framework that can effectively tackle the transboundary nature of ecological problems;
- (iv) the development of new economic tools such as a new national income accounting technique that allows for the depreciation of ecological assets and the costs of ecological rectification and more comprehensive methods of cost-benefit analysis and project appraisal (some of these new tools have already been used/refined by the Resource Assessment Commission);
- (v) a new set of macro-economic policies that provide incentives for environmentally-friendly industry and energy efficiency.

However, very few of these new initiatives are visible on the Commonwealth political horizon. Indeed, such an administrative and economic sea change seems increasingly unlikely in the recessionary 1990s. Instead, we are likely to see a more conservative policy response implemented by traditional administrative means. Moreover, the Government's growing concern with the ailing economy is likely to lead to an "environmental corporatism" (Schrecker 1990, 184) whereby continuing consultation is restricted to government and corporate elites and peak organisations. Doubtless the language of sustainable development will continue to be employed, especially in view of the international momentum generated by the forthcoming Earth Summit. However, such language will more likely be resorted to for its ability to legitimate and appease than for its potential to usher in deep seated changes.

REFERENCES

- Australian Conservation Foundation (ACF), Greenpeace (Australia), The Wilderness Society, World Wide Fund for Nature (1990) *Ecologically Sustainable Development*, Australian Conservation Foundation, Melbourne, August.

- Bartlett, R.V. (1990) "Ecological Reason in Administration: Environmental Impact Assessment and Administrative Theory", in *Managing Leviathan: Environmental Politics and the Administrative State*, eds. Robert Paehlke and Douglas Torgerson, Broadview Press, Peterborough, Ontario.
- Brown, L. (1991) "The New World Order", in *State of the World 1991*, ed. Lester Brown et al, W.W. Norton, New York.
- Brundtland, G.H. (1990) "Foreword" in Linda Starke, *Signs of Hope: Working Towards Our Common Future*, Oxford University Press, Oxford.
- Business Council of Australia (BCA) (1990) *Achieving Sustainable Development*, Business Council of Australia, Melbourne, July.
- Connolly, W.E. (1983) *The Terms of Political Discourse*, Martin Robinson, Oxford.
- Downs, A. (1972) "Up and Down with Ecology — The 'Issue-Attention Cycle'", *The Public Interest* 28: 38–50.
- Dryzek, J. (1987) *Rational Ecology: Environment and Political Economy*, Basil Blackwell, Oxford.
- Hamilton, C. (1991) "Ecologically Sustainable Development: Implications for Government", *Canberra Bulletin of Public Administration*, No. 69, May 1992, 65–75.
- Hawke, R.J.L. (1989) *Our Country Our Future: Statement on the Environment*, Australian Government Publishing Service, Canberra.
- Held, D. and Krieger, J. (1983) "Accumulation, Legitimation and the State: the Ideas of Claus Offe and Jurgen Habermas", in *States and Societies*, eds. David Held et al., Martin Robertson in association with the Open University, Oxford.
- IUCN, UNEP, WWF (1991) *Caring for the Earth: A Strategy for Sustainable Living*, Gland, Switzerland, October.
- Jacob, N. (1988) "Sustainable Development: A View of Limitless Growth?" *The Trumpeter* 5(4): 131–32.
- Pearce, D. (1989) *Blueprint for a Green Economy*, Earthscan, London.
- Pusey, M. (1991) *Economic Rationalism: A Nation Building State Changes its Mind*, Cambridge University Press, Cambridge.
- Rees, W.E. (1990) "The Ecology of Sustainable Development", *The Ecologist* 20(1): 18–23.
- Schrecker, T. (1990) "Resisting Environmental Regulation: The Cryptic Pattern of Business-Government Relations", in *Managing Leviathan: Environmental Politics and the Administrative State*, ed. Robert Paehlke and Douglas Torgerson, Broadview Press, Peterborough, Ontario.
- World Commission on Environment and Development ((WCED) 1987) *Our Common Future*, Oxford University Press, Oxford.

DISCUSSION — IV

Peter Hayes, Nautilus Pacific Research: *My question is to John Stone. One of the few substantive assertions that you made was the claim that one needs a higher GNP to afford environmental quality. Therefore, I wonder how one explains the explosion of the environmental groups in the poorest countries in the world in the last decade, which has gone from about 300 to nearly 6000 identified environmental or development environmental groups in the communities of those countries. I am talking about the poorest countries — in Africa, Asia and Latin America.*

Secondly, I wonder what Mr Stone thinks about the physical quality of life indexes that relate to GNP that show that there is an inflexion point of about \$1800 per capita GNP in 1986 dollars, above which you get a levelling off of physical quality of life. In fact, there has been a decline in the highest per capita OECD countries since about 1971.

John STONE: I do not think you have quite made your point in regard to the first point. The fact of the growth in environmental groups in some of the developing countries you refer to says nothing about their success in actually improving the environment. My proposition was related to the relationship between improvement of the environment and the growth of national product to give you the resources to do so. I suggest there is no conflict between those things.

On your second point, all I know is that despite your assertion about the point of inflexion of \$1800 per capita, which is not a per capita income that would appeal to many Australians for a start, in fact all the United Nations and World Bank studies on these things show that all the things that I would regard as important aspects of quality of life — such as, for example, the proportion of children being educated, the life expectancy of children at date of birth, the extent to which women are receiving education in developing countries — all those things appear to be more or less directly proportional to the rate of growth of per capita incomes in the countries concerned. I had occasion to research this matter fairly carefully about three or four months ago in order to take part in a public debate involving Mr Toyne and another member of the Australian Conservation Foundation in Melbourne as part of an international debating convention that was going on there. I see Mr Hayes shaking his head, but I am sorry, he is wrong.

Brian Galligan, ANU Federalism Research Centre: *I was intrigued by Michael Krockenberger's statement that new federalism was one of the seven or so dangers that we face, particularly when he ended up by saying that this whole sustainable development debate had to be in a sense community-based. I would have thought that a real conservation group now looking at where the community is in Australia would have to give as much credit to the State political communities as to the Commonwealth one, particularly when one thinks of the areas of jurisdiction where environmental issues are really primary — say, agriculture, for which the States are directly responsible.*

I would have thought any good analysis of the federal polity would have said that there has to be involvement of both levels of government properly in environmental issues because they are so large. There are surely areas and room for both. So I am puzzled at your insistence that somehow Canberra ought to have the running on this one and that you ought not to make States more responsible for that enormous amount of environmental jurisdiction that they are going to continue to administer.

Michael KROCKENBERGER: I am not making some sort of plea for more power for Canberra public servants. You brought up a good example that I agree with. Agriculture or the consequences of agriculture are probably our most severe environmental problem. I am suggesting that it is precisely the lack of uniformity around Australia, the lack of communication, in fact the competitiveness between States on many of these issues that are leading to problems.

I personally would be horrified by an entirely centralised approach. I agree that proper planning must occur, where the planning is to take place largely. That is what I mean by community consultation and a community context. However, I disagree if you are suggesting that that happens through the States. The States are just another level of bureaucracy. It may be in many cases a level of bureaucracy that is essential to running a country of our size, but what I am primarily opposed to is handing back powers, such as environmental powers and Aboriginal powers, back to the States when they are issues that are of national consequence, in many cases of international consequence, and should therefore be handled and coordinated by the national government and managed by the State governments.

My ideal system in cases where the Commonwealth Environmental Planning Authority might play a role is that it is the policy body at a Commonwealth level and that it administers through some sort uniform legislation across Australia, and that the States could certainly be involved through their agencies in managing the environment at that level. But I very much object to further powers being handed to the States when we should be moving precisely in the opposite direction to clear up the incredible lack of uniformity that we have on environmental issues — and there is an incredible lack of uniformity in Australia.

Lauchlan McIntosh, Australian Mining Industry Council: *I wish to put a point to Michael Krockenberger to clear up issues of rigour. I am not aware of any projects that are currently sitting around waiting on subsidies. Nor am I aware that the mining industry has been promoting fast-tracking. In fact, we recognise that the current processes are an admission of slow-tracking. We would rather just get on with the job than have a particular program. Nor am I aware of any Aboriginal communities that are being overrun by mining companies or developers seeking projects and where these have been overruled. They are three issues of fact that need to be addressed.*

I have some empathy with points made by Noel Pearson (Cape York Land Council). The first point was about the need for Aboriginal people to be more recognised and for them to be more involved in the process of development. I am not sure that empowerment is the only way to go. I think it is probably fair to recognise that the mining industry is one of the few industries in Australia that actually deal with Aboriginal groups right across Australia, and probably has a better record than any other sector in doing so. Unfortunately, because it is the only group doing so, it is often singled out for criticism.

Noel made the point that development brings lots of problems. I think it is fair to say that that happens not only for Aboriginal communities but for any community. The issue of this debate is about sustainable development and where to now. Michael Krockenberger has just made the point about equity — about trying to make sure that national issues are important. Australia, with its vast resources and comparative advantages in mineral resources and in many other land-based resources, has 5 per cent of the world's land mass and only 0.3 per cent of the world's population. The Aboriginal communities at the moment hold about 12 per cent of Australia, that is 0.5 per cent of the world's land mass with only 0.03 per cent of the population.

If we are talking about international equity, where do we stand in not developing our resources? I asked the question this morning: who is to blame for not making the best use of these resources, and how long can we continue not to be internationally responsible and to deal with this issue — that is inter-generational equity for the future, but also intra-generational equity now?

Michael KROCKENBERGER: There are quite a few points contained in that question! I do not know where to start. Perhaps I will start with the best use of resources. Your best use of resources is not our best use of resources and may not be the community's best use of resources.

Lauchlan McIntosh: *The world community or your personal community?*

Michael KROCKENBERGER: Whichever community. This is what the question of ESD really is about: what is the best use of resources? One of the matters I was involved in while tackling mining issues in the ESD mining working group was very much this question: where should the mining industry be mining? The assumption, never stated terribly clearly but always a bit blurry on the edges, was that the mining industry should mine wherever there are minerals, which sounds logical enough. Until one realises that minerals are also placed in areas with very strong cultural or ecological qualities.

If in fact the compatibility of mining with protection of those values was consistent across the board, we would have no problem, but it is not. Therefore, we do in those circumstances have a problem.

I am not suggesting, and have never suggested in the working group, that we should not have a mining industry in Australia. I am only asserting that when we do have a mining industry, as we do, we should make that as efficient as possible. However, your meaning of efficiency is not the same as my meaning. I would suggest that you are being "efficient" by protecting the environment and by protecting the cultural values in those areas that are crying out to be

protected. In circumstances one would have to forego the development of certain mineral deposits. That makes perfectly good sense in respect of ecological sustainability.

If you or the mining industry cannot accept that, we are fundamentally at loggerheads. The debate never got clear enough to me to know whether we are or whether we are not at loggerheads. We certainly seem to be at loggerheads because we do plenty of shouting at each other. One of the things that I would like to see happen out of the ESD process is — I do not mean this with any offence to public servants — that I would like to see the process continue without the public servants present. I would like to sit around the table with the mining industry to see whether we can sort out a few problems without the public servants. In my view a lot of those public servants — I am not trying to cast all public servants in the same way — but a lot of the bureaucrats are putting the most conservative views. It is not the industry itself that is putting them. I believe that there is far more flexibility in the industry to accommodate our views, and I believe that we have a certain amount of flexibility to accommodate your views. I would like to see the process continue in that way.

I would like to go into your questions of my rigour, but I do not think I will; we can talk about that one afterwards, and anybody else who wants to can join in.

Noel PEARSON, Cape York Land Council: The point about the impact of development on the social problems of Aboriginal people in many ways cannot be compared to the social impacts suffered by other groups, because the impact which has been sustained historically, which continues to be sustained by Aboriginal groups, is way out of proportion to the kind of impact that other groups in Australian society suffer. In their access to benefits Aboriginal people are quite severely disadvantaged as well.

If you go to Mount Newman, for instance, white people somehow can seem to survive with a Big Mac down the road, hairdressers, Westpac Bank facilities, shopping towns and so on. They seem to be able to cope with a massive mining development like that. Yet you see around the town decrepit, mangy Aboriginals like dogs in their own traditional country. What is it about Aboriginal people that they cannot seem to survive in circumstances like that?

The other point is that if the mining industry wants Aboriginal people to get serious about mineral development on their land, they must be much more realistic about access to benefits provided to Aboriginal groups. For instance, I am involved in negotiations in North Queensland with a mining company that has exploited Aboriginal-owned land, Aboriginal reserve land, for over 20 years. When we come to renegotiate the compensation package, the company wants us to accept \$100 000 for 21 years — roughly \$4700 a year. The company has extracted some \$20m–\$30m a year for the last 20 years, and there are huge opportunities for expansion in the future. If the mining industry wants Aboriginal groups to be serious about mining development, they must be more realistic in offering access to benefits.

I am also told about discussions on Aboriginal training and employment opportunities that might result from the Century deposit in the Gulf of Carpentaria. The mining company is telling the Aboriginal group “Go to DEET, go to ATSIC and get your training programs together because you too can take part in this economic development”. The mining company must pay. Mining companies must realise that there must be some sharing of the benefits of economic development on Aboriginal land, otherwise Aboriginal people are not going to take them seriously and there will be conflict for ever.

Clive Hamilton, Resource Assessment Commission: *I guess I should be flattered that John Stone has taken the time to read my paper, but I wonder why such a few limp pages could have such impact. When I look at this paper, “Ecologically Sustainable Development: Implications for Governance” — the title was given to me — I read things like “The pros and cons of ministerial councils”, “The importance of Commonwealth-State relations”, “The desirability of a new office of ESD”, but obviously there are more exciting pieces in the paper to the point where Mr Stone can even somehow mention the word ‘socialism’ as associated with my views.*

There might be a bit of a contradiction that in discussing, in the paper, Commonwealth-State relations, I am quite a decentralist in this matter and probably go along with a lot of people — perhaps a groundswell in Australia — that while many of us would like to see the State governments abolished, perhaps also we would like to see local government strengthened very considerably, particularly with reference to environmental matters.

John Stone made two points. One related to my statement that environmental issues are foremost. He has caught me out there. I was wrong. What I meant to say was “one of the most important . . .” Perhaps it has been foremost at certain periods. Certainly Senator Richardson [then Commonwealth Environment Minister] thought so at the time of the 1990 election, though many in his party disputed that. But we may well in future see environmental issues declining in the rankings of Morgan Gallup polls and so on. But that does not necessarily mean that these issues are becoming less important to people; only that they are being absorbed into our bones. It is just as if you had asked a lot of people in the 1970s how important they thought sexism was in our society, they would have said “Extremely important”, but people do not mention it any more because it has been absorbed into our thinking about the way society works.

There is also my point that John Stone took objection to in asking what sort of society we want. It appears to me that that is a critical issue that is being fought out daily in our society, politically and at a community level in the debates we have with our friends and at work, because society is changing. The question is, in what direction is it desirable for our society to change and I believe that we as a nation ought to be debating this. I think we have seen in the panel discussions

today that our society has changed in some very fundamental ways — the way that concepts of the environment and ecological sustainability have become second nature to very many of us — even to John Stone in asserting that environmental issues are critically important.

It suggests to me that John Stone in saying that we should not pose the question of what sort of society we want is implying that we should just accept whatever sort of society we have. To me that shows what a profoundly conservative man John Stone is.

Finally, John Stone described me — I was a bit shocked to hear this — as the new arch-priest of environmental activists. All I can say to that is “Amen”.

John STONE: I think there were about four points that Dr Hamilton made. The first was — and I acknowledge the handsome way in which he has admitted his error; so we can forget that point — about the significance of the environmental issue in the minds of people.

The second point was that he objected to my use of the word “socialism”, but went on to talk about his attachment to centralism, which he defined as abolishing State governments and leaving just a central government and local governments. If that is not centralism and socialism, I do not know what is. That was exactly Mr Whitlam’s proposal back in 1972. So I think Dr Hamilton was convicted out of his own mouth on that point. I do not want to press the point, but he was.

Thirdly, I do not in the least object to his raising the question of what sort of society we want. I think it is a perfectly proper question to raise. My objection was to the answer he gave to it.

Tom NANKIVELL, Industry Commission: *I am a member of Australians for an Ecologically Sustainable Population. The carbon tax did not really get up in the ESD debate, so I suspect the reproduction tax is a fair way away. But why is not population on the ESD agenda? I would direct the question to Michael Krockenberger of the ACF, who is avoiding that issue.*

Michael KROCKENBERGER: Well, I cannot answer your question why it is not part of the ESD debate because, unfortunately perhaps, we do not control the ESD debate. Certainly population is a factor in ACF thinking. It might interest you to know that we have just released a draft policy on population in our Council meeting that occurred only about a week ago. Because it is not an area I work in I am not familiar with all the details, but it will be available to read, I believe, in the next issue of *Conservation News*, which is the newsletter of the ACF. You can follow it up with people in ACF. It is very much fundamental to the thinking of ACF, but it is a thought-out policy of a couple of years’ work. Not being familiar with it and not wishing to simplify it, I suggest that you read it and direct questions to ACF.

Robert Bain, Association of Forest Industries: *Michael Krockenberger, I could not resist the opportunity to ask you why the ACF is so obsessed about the forest issue, though they declined to be part of the working group on forestry. It intrigues me when we are quick to admit that there is a whole ranking of environmental problems in Australia and any scientific assessment of them would put forests fairly well down on the list.*

The other question is why you keep trotting out the idea that we should be going into plantations. We may well go into plantations, but they will be in Chile and Brazil, and certainly will not be in Australia. About 60 per cent of our wood production currently comes from the native forest — about seven million hectares of native forests. We have got about 60 000ha of hardwood plantations. As a recent government inquiry has made clear, it is not economic to grow sawlogs in hardwood plantations in Australia. You know that fact perfectly well. We will not be short of wood, we can easily buy it overseas, but we will not be growing sawlogs in plantations in Australia. You know that perfectly well but keep on trotting it out at meeting after meeting. I am curious as to why you gave the priority to forests and then could not go on the forest working group, and why you keep trotting out this nonsense about plantations, which you well know to be incorrect.

Michael KROCKENBERGER: I do not know perfectly well it is incorrect, but I will start with the other one. We made it clear over and over again why we were not on the ESD forestry working group. I will state it again. We were not on that group because we felt that there was already a perfectly adequate inquiry under way, the Resource Assessment Commission forestry inquiry. That inquiry began before the ESD process. It is a more rigorous process; it is a longer and more thorough process; it is a more scientific process; it is a more participatory process. But it is not a perfect process. It is certainly a superior process to the ESD forestry working group one. We could not see why we should duplicate our efforts in a manner similar say to State and Commonwealth governments duplicating their efforts, so we simply did not take part. I thought that was efficient use of resources.

In regard to forests and how they rank as issues, I said before that agriculture is the worst environmental degradation that we in Australia suffer, and I do not take that statement back at all. I think it is true because of the extent of the degradation in Australia. It is true because of the impact of land degradation on productivity. It is true because of the impact on biodiversity. However, just because we only have 5 per cent of Australia under forest, it does not mean that therefore we should disregard that issue. In some ways it might make it a much more important issue because we have such little forest. It is probably indicative of how ACF treats these issues by how many people that work on them. I might say it is true that more people work on land degradation issues than work on forestry issues, and more people work on forestry

issues than work on mining issues, for example. That may be some sort of rule of thumb analysis of how important we think those issues are, but certainly it reflects something.

So far as the plantation strategy goes, our analysis over many years indicates — and it is becoming more and more fine-tuned — a number of things. First, the hardwood sawlogging industry in Australia is in decline. We are not the only people to say that. In fact, foresters themselves have to admit that because they are noticing their sawmills going bust. Hardwood is being replaced by softwood, and Robert Bain is right to say that not all that softwood will be supplied from Australia. Some of it will be supplied from abroad, a lot of it from New Zealand. Unfortunately, we cannot stop that happening because of the Closer Economic Relations policy with New Zealand. Therefore, it is true that it will come from abroad, but there is nothing that we can do about that.

Our analyses show that in terms of pulpwood primarily and hardwood sawlogs as a byproduct, Australia, if it chooses to be, can without any national economic hardship be self-sufficient in plantation timber by early next century. That is detailed in hundreds of pages of analysis that we have put to the Resource Assessment Commission. Again, I can only say that if you have not read it yet, perhaps you ought to do so.

Ecologically Sustainable Development

SHORT TERM URGENCY, LONG TERM PROBLEM

*1. Senator John Coulter**

I wish to pick up initially on the topic “Sustainable and equitable economic growth” — it is an oxymoron. One cannot have sustainability and economic growth. I will return to that theme shortly. If one looks at the whole sweep of biological life on the surface of this planet, one observes in mathematical senses what can be described as “a set” — a set of creatures, a set of principles, a set of relationships which describe all those observations that fit within the set. Quite clearly, *homo sapiens* is a subset of that set of biological life on the face of the planet. If you look at that set of things, human relationships are a subset of that larger set; and economic relationships are a subset of that set.

One of the things that I find when I look at discussion of ESD is that a lot of the discussion about the totality of life on the planet is taken from the point of view of economics. The logical fault in that is that one is deriving a set of criteria from a sub-sub-subset of the totality and attempting to interpret what should happen in the whole. I think most people will recognise that that is illogical. It is like a person, for instance, observing what happens to male persons between the hours of nine and five, a subset of all human activity, and then trying to extrapolate from that to the totality of all human relationships. Everybody will recognise that that would be fraught with all sorts of dangers and misleading conclusions.

There is thus a fundamental fault in much of the debate. It is particularly seen when you talk to economists in Australia, with a few exceptions, though not very many, and

certainly a lot of bureaucrats in government departments who are infected with that economic view of the world.

... a lot of the bureaucrats who drive the political system, and indeed a lot of the politicians themselves, do not come from a scientific background. They come from the arts, from the “soft” areas in which a lot of things are matters of choice. One often has arguments presented as though one has a choice about ecologically sustainable development or a choice about going down some other road.

My second point is that a lot of the debate is conducted as if there is a choice in a lot of these matters. That is not surprising when you find that, again, a lot of the bureaucrats who drive the political system, and indeed a lot of the politicians themselves, do not come from a scientific background. They come from the arts, from the “soft” areas in which a lot of things are matters of choice. One often has arguments presented as though one has a choice about ecologically sustainable development or a choice about going down some other road. I find that when you marry those two ideas, conventional economics accepts the first law of thermodynamics in which everything is infinitely reversible, and quite clearly one could have choices about which way you drive the system. But it totally ignores the second law of thermodynamics which says that there is an inimitable directionality about physical processes.

I am reminded of Hegel’s famous aphorism that freedom is a recognition of necessity. It seems to me that in looking

* South Australian Senator John Coulter is Leader of the Australian Democrats. Slightly edited text of speech in the affirmative at dinner debate on topic, Ecologically Sustainable Development — Short Term Urgency, Long Term Problem, RAIPA (ACT Division) National Conference on Ecologically Sustainable Development, Lakeside Hotel, Canberra, 9 December 1991.

at this whole debate as a species, one among many species on the face of this planet, we must recognise what is absolutely necessary, not only for our own survival but for the survival of all those other creatures with which we share the planet. Recognising that necessity, we will then be free to behave in ways in conformity with the wider set relationships, in conformity with the evolutionary processes which we are just beginning to understand. Acting in conformity with those things, then in a real sense we will be free.

My third point is to observe and contrast the way in which alternative views of the world present themselves in terms of future options. I think that bears perhaps particularly on this debate. Not so long ago in this country we had the publication of the report by Professor Garnaut. That report was 339 pages long and described in considerable detail the likely development of Australia, and particularly Asia, and the way in which that expected massive industrial development would lead on to a certain sort of lifestyle, a certain sort of industry, and the way in which Australia needed to lock into that development and the consequent things that Australia needed to do to join that expected future vision.

At about the same time the scientific committee of the Intergovernmental Panel on Climate Change published a report which said that greenhouse gas emissions had to be reduced by 60–80 per cent as rapidly as possible. That was not to bring greenhouse gas levels down to their pre-industrial state; it was simply over the next 40–50 years to cause them to asymptote to a level which would then be sustained indefinitely into the future. If one accepts for the moment that the morality of the situation relates to per capita use of resources, translated into Australian terms — because Australia is a profligate user of fossil fuel — that means a 92 per cent reduction in the use of fossil fuel.

Compare those two visions. I pose the question: which is the real future? On the one hand, you have an economist's view based on the conventional economic modelling. And, on the other hand, you have the view of a large group of scientists around the world based on real observations in the real world. I find it passing strange that when you look in detail at the Garnaut Report, over those 339 pages, there were six and a half lines devoted to the environment, which said that Australia had a very nice environment, it was good for tourism, and how could we encourage more tourists to come here and exploit the environment. There was no sense whatsoever that environmental constraints as

such placed a very heavy direction on the way in which development necessarily must occur.

Returning to my opening comment, the conflict between growth and ecologically sustainable development. So that I will not be misunderstood, I want to emphasise that what I mean by growth here is what an economist means by growth — that is, an increase in GNP or GDP in real dollar terms. It is a measure of the flow through the economy. It does not necessarily equate with development at all. I think it is possible to show quite conclusively that that sort of growth is simply not sustainable. There are two sorts of resources that go into that sort of growth. There is the material resource component, and there is the labour component. Conventional economics also talks about capital, but I think that those from a scientific background will recognise that capital really is stored resources and labour — it is stored low entropy, to put the matter in physical terms.

As growth is an increase in the flow, it means an increase either in the labour component or in the resource use component. Perhaps most people in this room would accept that non-material resources are not infinitely available; although on other occasions I have had this debate before with Lauchlin McIntosh who thinks that they are infinitely available.

Turning to the labour component — and a great deal has been made of this — a number of countries in recent years have had growing economies with a lowered flow or throughput of resources. Looking at those countries, some observers have said that it is possible to have a growing economy with a reduced throughput or usage of resources. Remembering that growth as measured has taken out the change in the value of the dollar from inflation, what is happening is that some people in those countries where those economies are growing in that way are charging more per hour for their labour. A consequence of growth in those terms necessarily means growing in equity either within the country or between countries.

The attempt by the industrialised developing countries by and large to continue growing is not only placing increased pressure on the use of resources — we see this particularly in less developed countries; tropical rainforest comes from places like Malaysia and Indonesia — but it is also directly causing an increase in inequity in the world. A lot of the problem in that respect relates to the attempt to grow.

2. Senator Peter Walsh*

The meaning of ecologically sustainable development is far from clear and far from brief, so let me give my definition of what is legitimate and what is not. If sustainable development means not adopting practices which make it impossible in the longer term to maintain the level of welfare that we in this generation have, I believe it is legitimate. If, on the other hand, it means absolutely no change to the physical or biological environment and that some people's living standards will have to be sacrificed to achieve that objective, I believe it is not legitimate. The former is thought by some to be an anthropocentric perception of the world, whereas what we should have, according to those people, is a biocentric ethic in which the health of the planet is paramount. In other words, homo sapiens has no more intrinsic worth than any other species — including presumably the AIDS and smallpox viruses, the second of which is about to be wiped out, I understand, and a lot of money is being spent on trying to wipe out the former.

I accept that that is the view of environmental extremists. It is a religious declaration and a particularly wacky one, although embraced by late twentieth century cloistered orders who live off the surplus of the economic system they assiduously try to destroy.

Much more dangerous is the more widespread, woolly-minded theology that man's actions must not diminish any other species, expounded by organisations like the Australian Conservation Foundation which declares that its aim is the preservation in perpetuity of all existing species, including presumably the AIDS and smallpox viruses.

The first point to make about that is that if such views had always prevailed, homo sapiens would still be in caves; certainly there would be no agriculture, no mining, no manufacturing industry, and life would be "nasty, brutish, and short". I suppose to the secular religionists who follow that view, that does not matter as long as the wogs and weevils are all right.

Put in the contemporary sense, adoption of that means that present living standards cannot be maintained, nor can the planet support the present population and maintain existing standards of living — in other words, that man is the plague, and some extreme environmentalists acknowledge that and say numbers should be reduced by 9 per cent. Unfortunately, they do not offer to be the first volunteers.

Some environmentalists acknowledge, and indeed advocate, lower living standards, lower levels of consumption. In the application of such a doctrine of personal morality, which surely disciples of such a doctrine should be eager to embrace, if they have the massive support which they claim to have, those concerned should club together and buy out

those areas of Australia or of the planet which they believe are such special areas with such high and intrinsic conservation values.

The *Sydney Morning Herald* recently reported that the Sydney Bushwalkers Club in 1931 paid the owner of a patch of trees somewhere on the fringe of the Blue Mountains 130 pounds in order to save them from being logged. Unfortunately, today's environmentalists have not followed the excellent example that the Sydney Bushwalkers Club established in 1931. Despite their claim that they have huge numbers, massive support and a dedication to reducing their own living standards — and, therefore, one would think that they would be eager to donate the money to buy these areas that they say are so special, thereby killing two birds with one stone, reducing their health levels, living standards and securing the future of these areas in perpetuity: they do not do that. Instead, they try to blackmail governments into conscripting somebody else's money to do it for them, including the \$800 000 that Australian taxpayers provided for the Australian Conservation Foundation and the World Wildlife Fund for Nature to participate in the ecologically sustainable development study.

The key to those twin objectives of a clean, healthy and aesthetically pleasing environment and maintenance of material living standards is to make rational trade-offs. You cannot have economic development without some impact on environment.

I would also mention the claim of teachers, who comprise 3 per cent of the total population and make up 18 per cent of the Australian Conservation Foundation. I certainly have not noticed that the teachers union is anxious to reduce their real wages, let alone volunteer to do so, nor have I noticed any large movement within the teaching profession to stop the union going, not for lower real wages but for higher real wages. In other words, many of the environmental activist movements in Australia are redolent with humbug and hypocrisy.

There is a much wider group who have the objective of having a clean, healthy and aesthetically pleasing environment. Well, who doesn't? They also want material living standards which they and others enjoy to be at least maintained at present levels. Many of them realise that poor countries tend to have very bad environmental standards, and that indeed high environmental standards are a luxury that only rich countries can afford.

The key to those twin objectives of a clean, healthy and aesthetically pleasing environment and maintenance of material living standards is to make rational trade-offs. You cannot have economic development without some impact on environment. The trick is to know to the greatest extent you possibly can the biological effects of what you are

* Western Australian Labor Senator Peter Walsh was Minister for Resources & Energy, 1983–4, and Minister for Finance, 1984–90. Slightly edited text of speech opposing the proposition at dinner debate, RAIPA (ACT Division) National Conference on Ecologically Sustainable Development, Lakeside Hotel, Canberra, 9 December 1991.

doing and to make rational judgments about how far you will go in one direction and how much you can trade off.

In saying that, there is a danger that I could be accused of being an economic rationalist. Indeed, if you listen to one New South Wales sociologist who recently wrote a book, the economic rationalists caused the recession we are now in. Speaking as somebody who was in the Cabinet at the time the foundations for this recession were being laid, principally in 1989, let me tell you that the economic rationalists of the Departments of the Treasury and Finance had far less influence on that Cabinet than the Australian Conservation Foundation the ACTU. Indeed, if the advice of those two departments, redolent as they are with dreaded economic rationalists, had been accepted, we would not have had that credit squeeze; we would have tightened fiscal policy. Anybody who knows anything about economics surely would realise by now that had that been done this recession at least would not be as deep as it is.

What is required to make those trade-offs that I have recommended is real science and real economics, not the sort of pseudo-science associated with greenhouse gas scaremongering. I would not have thought it is necessary to mention much more than the fact that one Schneider, who was the star of the Commission for the Future's circus in Melbourne in 1988, was as recently as the early 1970s predicting that we were heading for another ice age. Now, instead of an ice age, we are heading for the opposite. But he sees nothing wrong, within the space of 15 or so years, in coming to such diametrically opposed conclusions. We do not need that, and we do not need the sort of pseudo-economics that comes out of the Political Economy School of Sydney University either.

Far, however, from getting real science and real economics, we have a creed that makes a virtue of ignorance. We impose exploration bans on 22 per cent of the Australian continent, because we do not want to know what the mineral potential of that land is. Some 46 per cent of the Karri Forest in Western Australia, which I regard as the most beautiful piece of country I have seen in the world, though I don't go overseas that often, is quarantined for logging. I personally believe that that is too much, but it does not satisfy the environmental extremists. They want the lot. They want to close down the timber industry, the tall trees of Tasmania and, above all, the little bit of forest in Southern Tasmania that is identified as having such special value that it, above all others, must be maintained in perpetuity in its pristine beautiful condition; it had been clearfelled 60 years before.

It gave me no satisfaction as a lifelong member of the Labor Party to be a party to coming to a decision which knowingly put blue collar workers out of work in an area where the unemployment rate was already 24 per cent. It put blue collar workers out of work for no valid environmental reason whatsoever — indeed, for no other reason than to appease the middle class trendies of the eastern suburbs of Sydney and Melbourne, with perhaps a few people who are, some might say, professional clients of the Department of Social Security thrown in.

Such pressure groups cannot be appeased. Every compromise, every gain, every advance to them is seen as a launching pad for the next ambit claim, and it is about time politicians realised it.

3. Janet Hunt*

I am here under duress. I was asked to speak, and did not realise until after I had accepted the invitation to speak that it was a debate. What debates do is polarise. They encourage people to take extreme positions. Debates are adversarial; there are winners and losers. Debates such as we witness in Parliament House are simply the theatre of conflict. They contribute nothing constructive at all towards a sustainable future.

The first thing we have to do if we want a sustainable future is to transform our institutions from adversarial ones, which set groups against each other in a polarised way, to more consensual, participatory ones that build cooperation and get down to problem solving about real threats which are common to us all. To achieve a globally sustainable future we need a complete shift in how we think and act.

What are the trends that we have to challenge? First, we have to challenge the trend towards what I call "market rules" economics. It is the dominant ideology globally — the commitment to growth as conventionally measured, and the idea that the engine of growth is trade and trade liberalisation which is being pursued through the General Agreement on Tariffs and Trade. The theory is that trade is good for everyone, based on theories of comparative advantage, assumed voluntarism and mutual benefit. In practice this no longer holds true. First, absolute advantage in trade by the most powerful can lead to all trade gains going to one side rather than the other. Currently global financial flows are from the poor to the rich to the tune of about \$US50 billion a year. Equity is essential to sustainable development.

Secondly, differences in power within nations may lead to gains from trade being unevenly distributed. National inequality may increase, leading to instability.

Thirdly, trade leads to dependency and debt. The requirement for certain imports, whether they be food or luxury goods, eventually leads to the removal of a nation's freedom not to trade. This ultimately leads to vulnerability and loss

* Janet Hunt is Director, Campaigns and Education, Australian Council for Overseas Aid. Slightly edited text of speech in the affirmative at dinner debate on topic, Ecologically Sustainable Development — Short Term Urgency, Long Term Problem, RAIPA (ACT Division) National Conference on Ecologically Sustainable Development, Lakeside Hotel, Canberra, 9 December 1991.

of autonomy. Look, for example, at the volatile prices of primary commodities.

"Market rules" economics is being promoted by the World Bank and International Monetary Fund in the developing world and in Australia by the reaction of the faceless international financial system in our deregulated economy. While the GATT agenda of reducing European Community and American agricultural subsidies may be fine, the rest of the agenda — in services, investments, intellectual property rights and so on — look set to be yet another international tool for furthering the interests of the most powerful at a cost to the poor in developing countries.

This approach to development in the Third World is leading to massive environmental exploitation as countries mine their land, their soils and forests in a hopeless attempt to trade their way out of poverty. Meanwhile they impoverish the environment on which they and their children depend. Dinky Soliman from the Philippines said in Canberra recently: "We have all heard the maxim in development circles that if we give a person a fish he will eat for one day. However, if we teach him to fish he will eat for many days. But many fishermen in our country have remarked, 'Now that we know how to fish, where are the fish?' Unfortunately, most of the fish have been caught by the commercial trawlers and have been exported to the developed countries."

We have to recognise that development is much broader than economics. It has social, cultural, ethical, spiritual, political and, of course, ecological dimensions. It should be about meeting human needs, rather than greeds. We have distorted development, equating it with growth and economics. Our own development is diminished in the process. Socially, culturally, spiritually, ethically, we are underdeveloped compared to many other peoples. We need to rebalance our development and get the debate out of the hands of the economists alone. Above all, the ethical and ecological dimensions must come to the fore.

The second trend we have to look at is universalism. This recipe for development is being applied worldwide — whatever the conditions in the country, the particular and the specific situation of the people, whether their greatest need is for food or to conserve their environment or whatever. It is a single recipe for an enormously diverse planet, with tremendously diverse economic, social and ecological systems. It is wiping out biological diversity — an essential element for sustainability.

Linked to this is the trend to centralism, centralised power and control, within fewer and fewer people in government, fewer and fewer companies and fewer and fewer international financial institutions, shifting decisions away from local people, local institutions and local communities; reducing local capacity to respond to local problems and people's ability to have control over and a say in their lives.

This "development", as one Indian speaker, Khamla Basin, recently said, is like an elephant destroying local indigenous systems, wreaking havoc on people and their environments. Participation at local level, solving problems in creative ways has been shown time and again to be more successful at meeting basic needs. We have to resist the trend to domination as the ethic of development. It is deeply based in current interpretations of Christian theology, the split

between humans and the environment and the notion that we can "dominate" nature, rather than that we are one part of an interdependent ecosystem. We must learn to live in harmony with it and revere its fragility, beauty and, indeed, its sacredness. We are part of it — what we do to it we do to ourselves.

We have distorted development, equating it with growth and economics.

The most extreme form of our domination over nature and each other is warfare and military spending. Yet no-one, whether engaged in debates about the UN Conference on Environmental Development or ESD, is prepared to take this on — the most socially and environmentally unproductive expenditure on this earth. If we could as a species ask ourselves why we have such deep fears of each other that we are collectively killing ourselves by failing to deal with the real threat to ecofuture, perhaps we could see the absurdity of it.

Technology has run well ahead of our social intelligence. A shift from domination and conflict to one of ecological interdependence and cooperation is essential. Let me give some examples. Ten hours' global arms expenditure would supply contraception to all women who want it in the world. Twelve hours' arms expenditure would cover the costs of tropical reforestation and conservation. One can do that without even reaching a day's military expenditure. Two days' military expenditure would pay the costs of combating desertification worldwide, and ten days' military expenditure would supply clean water to the entire developing world. Can we really afford to ignore this issue?

Worldwide Fund for Nature and others have prepared a ten-year strategy called "Caring for the Earth". It has costed it at \$US1.2 trillion — which is just 10 per cent of global military spending over the period. We cannot afford to ignore it.

We also have to challenge what we will call the Western male-centred world view, which dominates our decision-making. Whether adherence to that world view comes from genetic background or environment, the evidence is overwhelming that men are more violent than women. It is not surprising then that they have led us into this very violent form of development, based on domination over women and over nature. They have created this destructive pattern of development that we now have to change urgently.

Women, because they are marginalised and often impoverished by this sort of development, along with indigenous people, have what I will call a "female" world view which is more sensitive to the poor and to the environment than that other world view. I acknowledge that some men share that female world view, but that view must get space. Without it the necessary changes will not take place.

We have to transform development, not simply "green" the status quo. That needs different voices — voices usually ignored or silenced. Those voices have been silenced in the ESD process. There is barely a woman's voice on any of the nine ESD working groups, nor are their industries or the household sector included in the studies. The likely

level of participation of women at the UNCED looks no better. Women have been notably absent from all the preparatory committees.

The final trend is what I will call the divided, fragmented approach to things rather than holistic. Our mechanistic, bureaucratic education, the nature of our institutions and our ways of thinking prevent us from seeing essential relationships. The industrial revolution was achieved by breaking processes down into their constituent parts. The ecological revolution has to put them back together again, both in what we do and in how we think.

Let me give one example. The ESD process in Australia has virtually ignored the global dimension and relationships, yet we cannot exactly have an ecologically secure Australia on an ecologically doomed planet.

There will be two big issues at the United Nations Conference in Rio de Janeiro in June 1992. The first is the fact that a quarter of the world's people in the developed countries use 60–80 per cent of the fossil fuels and minerals and are responsible for a similar percentage of resulting pollution problems, and yet they shift the blame for environmental degradation to the Third World.

The second is the fact that those same countries are digging in their toes about assisting the Third World to meet basic levels of material development for their people without further damaging the environment of the planet.

Never has the need for international cooperation been greater. Unless we see the whole, Australia's future, as well as that of the planet, is threatened.

4. Lauchlan McIntosh*

How many here have read the Brundtland Report? ... I would say less than 30 per cent — maybe 25 per cent. It seems to me that if you are really fair dinkum about being involved in the environment debate, you really need to read that report. How many people have read the new world conservation strategy that was spoken about by Janet Hunt, "Caring for the World"? ... Obviously the answer is even fewer of you.

Business has hidden behind government for a long period in most of the world. It has encouraged subsidies and trade barriers, but now it wants to change. It sees that there is hope in more sustainable activity.

Are we really fair dinkum? Are people really concerned? People today have talked about change, about doing things differently. How many of you really want to do something differently? Justice Stewart (Chair of the Resource Assessment Commission) at a recent conference gave a little anecdote based on a poem by Banjo Patterson, entitled "Come Down from the Stand", which says that people who want to criticise should come down from the stand and actually do something. There is a better poem of about the same vintage by Henry Lawson entitled "My Land and I". It was written at the turn of the century and I suggest you read it.

They have eaten their fill at your tables spread ...
(As my enemies did at mine),

And they croak and gurgle, "Australia's dead"
While they guzzle Australian wine.
But we heed them never, my land, my land,
For we know how small they are,
And we see the signs of a future grand,
As we gaze on a rising star.

If that is the sort of vision that Lawson saw for this country, it is a pity that we do not seem to see that same sort of vision today.

The question is: if there is to be change, who is to bring it about? I am fortunate to be involved in the World Business Council for Sustainable Development which will have an input, I hope, to the 1992 summit in Rio de Janeiro. It is interesting that when one looks at what has happened world-wide, business has changed dramatically in the last decade. World business recognises the need to be sustainable. Whether it be South American business, African business, Asian business, Australian business, European business there are dramatic changes going on in the business world. They are looking to open competitive markets for better and free trade. That is not easy for business. Business has hidden behind government for a long period in most of the world. It has encouraged subsidies and trade barriers, but now it wants to change. It sees that there is hope in more sustainable activity. It wants to be open and wants to be involved in leadership. It is prepared to change. Business is doing things very differently today than it was ten years ago.

The question for the people who have spoken here tonight, "Are you doing things differently from what you did ten years ago? Why are you still carping along the same old line of 'Australia is dead and the world is finished'?" I put it to you that we really can do things differently. The challenge is to do it, not to sit around and wait.

Change has actually happened; change is there. In agriculture we are looking at new ways; and Rob Bain today spoke about new ways in forestry. We have new ways in mining. I have worked with environmental scientists for

* Lauchlan McIntosh is Managing Director, Mining Industry Council. Slightly edited text of speech opposing the proposition at the dinner debate, RAIPA (ACT Division) National Conference on Ecologically Sustainable Development, Lakeside Hotel, Canberra, 9 December 1991.

over 20 years in restoration, rehabilitation and pollution control. We lead the world in this country in some of the things that we have done. We should be proud of it and should stand up and say so.

I am reminded of what was said in the World Business Council when we discussed: "Should we talk to our employees about sustainable development?". A chairman of an American company said, "God dammit, we talk to our employees about everything. We don't need to talk to the unions or anybody. We just go straight to our employees. It is not a problem". A lady from Sweden said, "Well, in Sweden we talk with our unions and the unions talk with the employees". There was some debate as to whether we should talk to the unions first or the employees first, and a lady from Nigeria — we have a few ladies who run companies — said, "This is a most interesting problem. In Nigeria we would like some employees". That is a very sobering thought.

The Third World and those in the developing world do not want to sit around in the gutter; they do not want to live the standard of living they are living now. They want to have some new options and to build themselves up. It is our responsibility to do that, to use the resources that we have in this country to make it possible for them to move forward. Sitting down and doing nothing is not in our interests or in theirs.

The second point I want to make is about rigour and myths. Let us get the facts right, and not talk in broad generalisations. What are the real issues? The National Academy of Science in the US made the point recently that greenhouse is way down on the list of real issues. Disease and population are the most important issues. And what are we saying about those today? We are skirting around them. Most forums do not talk about such things. It is easy to talk about greenhouse, easy to talk about a carbon tax. Why do we talk about a carbon tax? It costs a dollar a barrel to get oil from Saudi Arabia, and we charge \$20–\$30 a barrel for it. It seems to me that there is one hell of a carbon tax on it already, so what is the point in putting on another? Why not use the energy we have to make things better for those people who can use it?

The issue of species loss is touted around. How many times have we heard that Australia has the worst record of species loss of any continent? There has been no mammal species lost in the last 50 years in this country, because we are better at managing what we are doing. We had an appalling record for the first 150 years, but have done a hell of a lot better in the last 50 years. Surely we can be proud of that. Isn't it time we stood up and said, "We are doing a much better job now"? We were poor at it, but we have changed and are doing better.

When the issue of rigour came up, John Stone took my lines on the Clive Hamilton paper. I must admit that when I got to the piece about the fact that we have Alan Bond and David Suzuki, I threw the paper away. We do not have to have one or the other option. That is not an option for Australia. There is a synergistic option, which Janet Hunt talked about briefly. The option is that rather than polarise our debate, we build on our successes and get some synergy going. One and one might actually make three or four if we build on the strengths and successes.

Then people talk about equity. It is about equity for people today, the 800 000 people who are lying in the streets today unemployed. What are we doing about finding work for them now? There are projects that could go ahead that will not cause environmental damage. Who is promoting these? Who is accountable for the fact that those projects are not under way today? It is not a "gimme" society.

Noel Pearson talked about mining industries giving Aboriginal people more. The mining industries must take it away from someone else if they do that, from the customers or from someone else. That is not to say that we should not be sensitive to the needs of Aboriginal people. I have been fortunate enough to work with them.

I must say I was appalled when this afternoon Noel Pearson talked about Mount Newman. I ran the Mount Newman operation. The Aboriginal people lived 100 miles away from there and refused to come into the town. They did not want training, they did not want to be associated with the European society. That was their choice and we respected them for it. They can change their minds and now they can live in the town at a different level. That is their choice to a certain extent. We in the European society have to learn how to accommodate that. It is not easy, but the mining companies are there at the forefront of it. People in Canberra are not at the forefront of it; they are not prepared to tolerate that. Someone has to do it — we the society; we all have to be part of it.

The question of the Ord River was raised today, as though it was some massive failure. Things have changed at the Ord River. I was on the Kimberley Regional Development Council and there is a different sort of farming going on there today which I understand is profitable. There is a difference. Let us not live in the past all the time.

The precautionary approach has been spoken about. Is not that like book-burning, locking up areas, not doing things, saying, "Gosh, we don't want to know what's there because if we find out what's there, we might want to use it"? It's like having books and not using them. I am all for being cautious, but I am not for the polarised view that Michael Krockenberger spoke about today, about having either the precautionary approach or the permissive approach. There is somewhere in the middle where we can be cautious but cannot stop.

The one thing about people is that we are smart. More than any other species, we can learn from our mistakes. Let us give ourselves the opportunity to learn from our mistakes and be better at what we are doing. Is it not great for us that we can learn new knowledge and learn from our mistakes? There was an economist a century ago who said that when the jayhawk ate the chickens there were fewer chickens, but when man eats chickens there are more chickens. We learn how to accommodate the destruction of some species and we can actually improve the environment. In many cases that has happened in Australia. We have gone ahead because of our knowledge and improved the situation for some species.

The issue of uranium has been nicely put away today and forgotten about. Where are we in Australia? We have lost the technological race. We have 30 per cent of the world's reserves of uranium, and other countries, other brains, are working out new uranium sources and new uses of uranium.

This country has let the opportunity slip away. Surely that is not equitable. It is a tragedy for us to do that.

It is important that we look at new knowledge. I believe new knowledge is what sustainable development is about. It is about finding new ways and encouraging people to get in and look for them. There is some hope if we can find new knowledge. It is not all doom and gloom. Let us look at synergy and build on our successes, and see whether we can improve. We are not running down the capital base; we are not running out of anything. We have more oil now in the world than we had 10 years ago; we have more of most minerals than we had 10 years ago. We will eventually work out how to recycle this building to extract all the minerals within it and the ground underneath it. We will work out how to use those resources. That is the smart thing about being people.

The most important thing I heard today was Michael Krockenberger's comment that he wanted to work with the mining industry. I am not sure whether I agree with him that it should be without the bureaucrats; I am happy to do either. If the ESD process has done nothing else but to bring together the various groups, then I am all for it. The more community participation we can have by people sitting down and listening to each other and who want to do that, the better off we will be.

So, in summary, what I have raised is the question of change, and who is going to change. Business has changed and will continue to do so. The challenge is for the carpers on the side to change as well. Let us look, be rigorous and dispel some of the myths. Let us look for new knowledge. Let us look for some hope and do something. Let us not be elitist and protectionist.

DISCUSSION — V

Peter Hayes, Nautilus Pacific Research: *In the 1980s Stephen Schneider was responsible for producing global models in respect of the impact of global nuclear war. The state of scientific knowledge accumulated through that modelling process led to a new scientific hypothesis that is now generally believed in the scientific community to be a fair simulation of what the future might hold for us. Surely it is wholly scientific to accumulate knowledge and to put that forward through the scientific community, as Stephen Schneider has done, and surely it was prudent and appropriate for the Commission for the Future to bring that to the Australian community's attention.*

Senator WALSH: I am pleased to hear that the Commission for the Future is interested in accumulating knowledge. Therefore, I expect it will campaign for the removal of exploration bans on 22 per cent of the Australian continent, so that we will know what minerals are there and then make a rational decision as to whether to mine them.

The Stephen Schneider story rather reminds me of another story when Graham Richardson rang Bill Hayden in late 1982 and said, "All that stuff in the paper about another challenge being organised has nothing to do with us, mate". Bill said, "Well, that's what you told me in June", and Graham said, "Oh, but, mate, we were lying to you then. This time we are telling the truth".

The greenhouse theory in its extreme form piles conjecture upon conjecture and then misrepresents the final claims as incontrovertible economic truth. Why should we believe Schneider even though the fad of the 1970s was the ice age and the fad of the late 1980s is that we are all going to cook? In between he finds some accretion of knowledge that justifies the reversal of his position. I say that people like that are charlatans and should be treated accordingly.

Senator COULTER: I think this exemplifies where this debate is at. Unfortunately, you have those people who say, "Let it rip until we get better knowledge". The facts as regards the change in the global atmosphere are incontrovertible, Senator Walsh. There has been a very substantial increase in the carbon dioxide content in the atmosphere; there has been a very substantial increase in nitrous oxide, in methane, and in chlorofluorocarbons. If one is not certain what the effects are likely to be and these changes are accelerating and if, as Lauchlin McIntosh says, we are so bloody bright, then the prudent person will go just a little bit more cautiously until we know a little bit more about what the consequences are likely to be.

Stephen Bartos Department of Finance: *I would like to make a comment rather than ask a question. I learned the other day, and cannot source the exact quote, that there are two ways of looking at problems from the point of view of government.*

One is that people from outside say, "Don't just stand there, do something"; and the other side says, "Don't just do something, stand there".

It seems to me that one of the virtues of the ecological sustainable development groups is that they have avoided that trap of either trying to do something precipitate and do the wrong thing, or to do nothing at all because the problems are too

hard. They are trying to work out a way of going through those very difficult problems and coming to a solution at the end of the day, but taking their time to do it and doing it in a reasoned fashion.

The notion, for example, that within the ESD groups there have been pro-development groups dominating them must strike DASETT, which has been the most represented department on those working groups, as a bit of a worry. Is Clive Hamilton referring to them?

The notion, for example, that within the ESD groups there have been pro-development groups dominating them must strike DASETT, which has been the most represented department on those working groups, as a bit of a worry. Is Clive Hamilton referring to them?

One of the worries I have about the way the debate has been set up tonight — and I agree with Janet Hunt on this score — is that it is getting away from that reasoned and developed approach. One worries about the way Clive Hamilton's paper has characterised it. It has tried to present the debate in that polarised fashion. The notion, for example, that within the bureaucracy you can characterise departments as being either pro or anti development strikes me as quite absurd. The notion, for example, that within the ESD groups there have been pro-development groups dominating them must strike DASETT, which has been the most represented department on those working groups, as a bit of a worry. Is Clive referring to them? I am a little worried as to whether he is referring to them or not. Or is he referring to Primary Industries & Energy? If he is, then they would be rather worried because there are senior officers within that Department who are far more environmentally conscious than a few senior officers in DASETT, and vice versa.

The simplistic notion that one can divide bureaucrats into pro-development or anti-development or that one can divide debate on those lines strikes me as one of the problems that we as a country have to face. One cannot have that sort of simplistic approach to problems and cannot try to divide either the bureaucratic or even the ESD debate into those terms. To attempt to do so is to avoid the problems altogether.

Robert BAIN, National Association of Forest Industries: I have a question for Senator Coulter. I made the mistake of going back to my office between the end of this afternoon's meeting and the dinner tonight. When I got to my office I found a letter from Senator Coulter. I had written to him along with a lot of other parliamentarians asking him to support us in getting some resource security for the industry as a basis for investment. The letter from Senator Coulter said, "No way will I support you. The sooner you get out of the forest the better".

I have some difficulty with that, even within the context of ESD. First, it gives me no scientific argument as to why we should be out of the forest — no references, nothing to show that what we are doing in the forest is in anyway damaging to the sustainability of Australia.

Some 80 000 people depend on the native forests. There was no mention of them or of the social impact or what happens to them. We get 60 per cent of our wood production from the native forests. He said that we should go into plantations. If we grow plantations for sawlogs, it is at least 80 years away, and I am sure he is not going to let us into the native forests for another 80 years. So presumably we import the stuff from someone else's native forests. I have some difficulty with someone who preaches to us in the way he has tonight, and who then writes a letter to me in which he ignores the scientific facts, ignores the people and ignores the trade implications of his proposal.

Senator COULTER: I think forestry in Australia has not been sustainable, and I think the evidence is quite clear on that. One does not set out the whole chapter and verse when responding to letters from an industry. I think that the evidence of loss of species, despite what Lauchlin has said, is also very substantial. When one looks at the Resource Assessment Commission reports, one finds that forestry in Australia has been an economic disaster for this country. Every State has run up enormous debts, with the exception of South Australia where all the forestry is now based on plantations. Moreover, the decrease in employment in the industry is related more to the change in the nature of the industry and the move to chipping and away from sawlogging where the industry was employing a lot of people. We are essentially underwriting the export of very cheap woodchips, and I think even Senator Walsh would agree with me that that resource has been grossly undervalued in this country.

Lauchlan McINTOSH: I agree with what Stephen Bartos said. Let us not polarise everybody into camps simply based on where they come from. Today, when I asked a question, somebody commented, "Oh, that's the mining industry". I am a person like everybody else, many of us have children and we all want to have a better future. We all have a right to be heard and to listen to others. Let us take Justice Stewart's advice and come down from the stand and say something. Let's not be like the people Henry Lawson had in mind and sit there guzzling Australian wine and saying that things are crook. We can do better, and there is a great opportunity for us all to take part in achieving that end.

Janet HUNT: There have been a load of accusations about the environmental movement thrown around tonight. Some of the people I respect in the environmental movement have great concern for jobs and about equity. They have done a lot of research on how to use resources in a sustainable way and maintain, and, indeed, in some cases, increase the amount of employment available. I think that is the kind of detailed study that needs to be conducted, read and implemented. People can then see that those who are concerned about the preservation of the planet are also concerned and actively doing something about the future of the people who live on it as well.

Sustained Consultation and Sustained Controversy

HOW SUSTAINABLE ARE ALL THESE DEVELOPMENTS ANYWAY?

*A.R. Dobell**

This day has offered a remarkably interesting review of a very complex subject. In general terms, we have seen in the first half of the program brief explorations of the concept of sustainable development, the growing awareness of long-term consequences of current decisions, and the variety of possible measures for pursuit of social goals of sustainability.

Such a stock-taking seems particularly timely at this moment, on the heels of publication of the nine sectoral reports of Australia's own consultation process on ecologically sustainable development. In the second half of the program we saw the debate itself truly joined, exploring the "S versus D" question — the internal contradictions in what I once called the "oxymoronic semantic capsule of the eighties" — sustainable development.

Any risk of agreement or consensus breaking out in this field of sustainable development is, despite any initial appearances to the contrary, really quite exaggerated. To demonstrate that, we need only try to do what several speakers today have urged us to do, namely, to get on from general propositions to specific recommendations for concrete action, or "actionable conclusions" as they seem to be called these days. Indeed, we saw ourselves this afternoon that views on where we ought to go from here still differ both widely and strongly.

And yet it does seem to me that there is in these discussions, as Stuart Harris noted of the ESD (Ecologically Sustainable Development) process itself, a remarkable degree of consensus on a number of key points.

The first is that we are talking here about an economic orientation in pursuit of a social goal, about making the market work, not about replacing or rejecting it.

The second, as Senator Sowada (Australian Democrat, NSW) emphasised, is recognition that markets can only work effectively within structural or regulatory frameworks

established by governments on behalf of the communities they represent.

And the third is awareness that these frameworks must reflect an ethical context, and can only be established through decisions that are ultimately political and judgmental.

Let me remind you very briefly of a few of the observations that were made today on each of these three points.

MAKING MARKETS WORK

On the first, it is clear — and it is important to be clear about this — that we have been talking both explicitly and subconsciously about fixing the market, not overriding it, in order to pursue economic rationality and appropriate paths of economic development. Our discussion has been about making the market work better for us.

A first step in doing so is recognising that the best use of resources cannot be signalled by, nor can economic rationality be achieved in, an incomplete price system in which increasingly scarce resources are unpriced or undervalued in private and public decisions. Professor Stuart Harris outlined this argument in his masterful keynote address, and the point was forcefully picked up by several other speakers.

Ponciano Intal from the Philippine Institute for Development Studies, in offering comments on perspectives from developing economies, made the further important observation, perhaps not sufficiently recognised in many discussions, that such a failure to price ecological resources adequately, or to reflect environmental costs appropriately in all downstream prices, distorts more than just the current allocation of resources. It also misdirects investments in technical change, with consequent failure to achieve feasible and desirable increases in efficiency and enhanced productivity in the use of scarce natural resources. It thus means that development paths underutilise plentiful human capital and over-use scarce natural resources whose relative scarcity is inadequately signalled in the absence of prices or through artificially low prices.

Much of the discussion of sustainable development to which we have referred today is simply about fixing these problems of distorted or missing prices and undervalued ecological resources. It reflects the proposition that ecological

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rationality is to a great extent merely economic rationality with all the hidden environmental subsidies exposed and eliminated.

But it is also about another economic issue, namely property rights and tenure systems, where clarity and certainty have become vital. Only with a secure claim on some of the returns from management and conservation of natural resources will there be any incentive to assure appropriate stewardship of open-access or common property resources. Only with some certainty of tenure or property rights can corporations or any other enterprises invest in any processes of building for the future.

Several speakers recognised that transition to a system of full cost pricing and transferable property rights will not be easy. The political economy of the necessary redistribution will be challenging and the question of who will bear the adjustment costs will not be easily settled. Introduction of true full cost pricing (including "polluter pay" principles and the like) will be resisted just as the removal of any other subsidies and protections around which massive industries have been built up will be resisted. Loss of jobs and loss of competitiveness will be threatened.

It is important to be clear that it is adjustment costs at issue here. The subsidies already exist; it is only a question of recognising them or hiding them. Being more realistic or more honest in costing and pricing practices may trigger some painful adjustments, but ceasing to delude ourselves about the true extent of economic gain will not render anybody fundamentally less competitive. We in the more developed nations have been pretty free in backing IMF and World Bank pressures on the poorest countries to swallow the pain of profound adjustment in the name of market discipline; we should hardly be less responsive to the demands of market discipline ourselves.

Ultimately, however, there is a limit to the reach of the market in all this. Mrs Thatcher's quintessentially market-oriented perspective, quoted by Stuart Harris, captures the point well: no generation can claim freehold ownership of the Earth's resources — what we have is simply "a life tenancy — with full repairing lease".

Which brings me to the second point, that government must set the groundrules within which the market operates, property rights are established, tenures secured and economic instruments deployed. Community decisions exercised through local governments are just as legitimate as those exercised through international commodity or money markets, and, indeed, must set the prior framework to assure that social objectives of safety, equity, and sustainability are properly reflected in the decisions of market agents.

RULES AROUND THE MARKET

Many of these decisions finally are political decisions that reflect the play of values and the balancing of interests in the community, not only the balancing of prices in economic calculation. We have to find in the sustainability objective the basis for political action.

For this purpose we have seen a flowering of consultative and discursive processes, some more representative, some more participatory. It has been questioned here whether

these consultative processes can ever be brought to a close, whether the controversies they open up can ever be brought to a conclusion, or whether the only thing sustainable about this exercise is the argument itself. (Hence the title for these remarks.)

Being more realistic or more honest in costing and pricing practices may trigger some painful adjustments, but ceasing to delude ourselves about the true extent of economic gain will not render anybody fundamentally less competitive. We in the more developed nations have been pretty free in backing IMF and World Bank pressures on the poorest countries to swallow the pain of profound adjustment in the name of market discipline; we should hardly be less responsive to the demands of market discipline ourselves.

More particularly, the process of consultation has seen possible failures of three kinds, about each of which questions were raised this morning:

- a tyranny of the minority, where protracted consultation may have led to general consensus, but a (possibly tiny) minority is simply unwilling to be persuaded, and can mobilise a blocking coalition to thwart action of which the bulk of the community would approve; the NIMBY phenomenon and similar blockages, often related to subjective risk perceptions or risk preferences, are familiar here;
- a tyranny of the majority, in which alleged national or global interests (frequently rather abstract or generalised) are advanced as the justification for over-riding the revealed interests of local minorities, who may have to bear the brunt of the resulting losses locally;
- an inability to take individual decisions in the context of an agreed overall plan necessary to give the individual action meaning; the example here is the wilderness preservation decision, which can only be reasonably assessed in knowledge of what other choices will be made in a whole portfolio of similar dilemmas, so that priority rankings, rather than one-off, go/no-go decisions can be rationally addressed.

Decisions of these kinds are undeniably political, and the challenge is not so much making them fairly (though that is difficult enough) but making them so they stick. Everybody agrees that we need a degree of political and economic stability to emerge from the processes that have been set running; as Robert Bain of the Forest Industries Association emphasised, business and industry can live with regulatory frameworks and standards, but what is needed is closure and certainty.

There is no magic recipe for assuring outcomes that will stick. What was said today suggests that chances of achieving certainty and stability are greater if decision processes

provide opportunities for full discussion and participation, a degree of openness and "transparency", and some assurance of continuing independent scrutiny and monitoring.

They must also, as Noel Pearson (Cape York Land Council) emphasised, respect fully the views and values of Aboriginal groups and indigenous populations. This is partly for quite practical reasons, as Pearson noted — it cannot be expected that Aboriginal groups will be prepared to pay the social costs of development, or to embrace development paths, sustainable or otherwise, from which no significant share of the benefits flows directly to them.

Partly the involvement and empowerment of Aboriginal groups must be sought simply for reasons of equity, to redress massive historic injustices.

It has been emphasised several times that sustainable development must necessarily be equitable (else it could not be sustainable). It entails both intertemporal equity and contemporary equity. It thus entails giving voice and weight to interests often not represented in either market mechanisms or voting mechanisms — those distant in time or in space, or those, like indigenous peoples, different enough that their interests have been ignored in the process of development thus far.

But, as well, the participation of indigenous peoples may be important from the ethical perspective. Incorporating native traditions of stewardship and sustainability gives concrete effect to Mrs Thatcher's precept quoted earlier.

AN ETHICAL CONTEXT

Finally, we come to the third point, that regulatory frameworks and consultation processes entail decisions forced from an ethical framework. It has been emphasised several times that sustainable development must necessarily be equitable (else it could not be sustainable). It entails both intertemporal equity and contemporary equity. It thus entails giving voice and weight to interests often not represented in either market mechanisms or voting mechanisms — those distant in time or in space, or those, like indigenous peoples, different enough that their interests have been ignored in the process of development thus far.

This "stewardship" perspective leads directly on, as Michael Krockenberger (Australian Conservation Foundation) emphasised, to quite concrete groundrules for pricing, and to conditions under which harvesting or exploitation rights can be exercised. It also leads to a variety of conditions of open processes of consultation, consensus-building and dispute resolution.

But with all this, Robyn Eckersley (Centre for Environmental Studies, University of Tasmania) is still led to question skeptically whether environmental issues will

every successfully break out of the box labelled "luxury concern".

WHAT ABOUT THE INTERESTS OF THE POOR?

Before concluding, then, we have to deal with one key underlying theme which surfaced in various ways through the day. John Stone suggested that we need not choose between the "intellectual rubbish" of Suzuki (David, not Shoichi) or the "non-intellectual rubbish" of Bond (Alan, not James). Rather, he suggested a middle way, which one might characterise as Wildavskyan (Aaron, not ...): "Richer is Safer, Wealthier is Healthier" — the process of economic development itself generates the resources (and the interest) to invest in quality of life and the integrity of the environment.

With a different emphasis, Ponciano Intal of the Philippines and Jin-Young Chung from Korea reminded us that sustainable development is as much about development as it is about sustainability.

Lauchlan McIntosh (Mining Industry Council) asked who would stand accountable for the development not pursued, and heard no answer. Stone, Senator Peter Walsh (Labor, Western Australia) and McIntosh all spoke of the burden on the poor and the unemployed and the others who (seemingly) share more in the costs of development foregone than in the benefits of wilderness preserved or environmental quality improved.

The answer I heard from this gathering was that, indeed, we must all be accountable for these choices, and that to be properly accountable we had to be properly informed in all our decision roles, public and private. This means much improved reporting — resource accounting, sustainable development indicators, environmental impact assessments, and all. It means full opportunity to know, understand, and participate in the key decisions that set the frameworks for markets and technocrats. But, above all, it means a willingness to accept the technology transfers, the resource transfers and the personal lifestyle change that will necessarily accompany any equitable sharing of the burden of the sustainability constraint and the stewardship responsibility.

To shift to the style and character of economic growth implied by a development path sustainable in the fact of foreseeable rates of economic growth will entail dramatic adjustment. To ensure that the burden of that adjustment does not rest with the poorest of the poor will demand dramatic redistribution of wealth and income. Acceptance of that reality will no doubt prove the biggest of the many challenges to be faced in pursuing the path of sustainable development.

CONCLUSION

In conclusion, then, we are looking to a number of consequences for processes of policy formation, all intended to lead to better decisions on directions for development.

- A vastly improved information base for policy analysis, business decisions, and public information as environmental concerns increasingly are integrated with economic reporting;

- Vastly expanded consultation processes, both sectoral and regional; and
- Substantially more effective participation of individuals and groups in decision processes affecting their interests.

Implementation of such decisions will occur both through "political markets", with greater participation in continuing administration and possibly considerably more devolution of responsibilities, and through economic markets, with pricing policies to get existing hidden subsidies and price distortions out into the open, and market instruments to get private incentives in line with social objectives.

In turn, all this implementation activity will generate new flows of information, monitoring data, and administrative experience as a foundation for further improvements in policy formation.

But the major change in all this consultation activity, roundtables, and social learning is the dramatic change in the nature of government represented by the appeal to an empowered citizenry. There is unlikely to be any reversion to a more technocratic representative government; institutions will not be trusted unless they succeed in maintaining a more open and participatory stance. In that sense, the concern for ecologically sustainable development is simply a carrier for a broader concern with governance in a global information society.

Finally, then, in the long term we might look to the withering away of all the apparatus of independent commissions, accountability mechanisms, coordinating agencies for sustainability within and without government, and so on. We might look to see environmental values so fully internalised that the groundrules of ESD are as automatic as those of honesty, integrity and charity presently are in all private and public decisions(?). The over-arching ethical principle of sustainable development — fairness to future generations — in particular should then be embedded in all public policy.

Whether technical or political, decisions made by or on behalf of the community should presumably display fairness to the future in the same way as they presently embody other basic social rules and constraints. Whether it would be politically profitable or economically advantageous or

not, we normally prohibit decisions which exploit people, for example, or take advantage of children, or offend against human rights. Government machinery and decision processes will properly have embedded the goal of sustainable development when the interests of children distant in space or in time or in kind enjoy the same protections as those closest to us. (For the interests of those distant in time, the health of the ecosystem may be taken as the best single proxy indicator, but we need not pursue this complex question here.)

So, if we must expect to have the politicians ever with us, it seems we must also recognise there is little chance of escape from the analyst, the bureaucrat, the independent commissions, and unending consultation processes.

There are the technical problems of measuring and assessing the consequences of proposed decisions for the health of the ecosystem or the interests of future generations, which may be reason to believe that we will still need dedicated ministries of the environment for the foreseeable future. Moreover, we have already recognised that ultimately the decisions we are discussing are inevitably political and value-laden, no matter how heavily they rest on market information and exploit economic instruments. To lead those decision processes toward some conclusion, we probably cannot escape the need for politicians. Realistically, it seems likely that we will also find it necessary therefore to appeal to a variety of institutions to assure the democratic guarantees within which both bureaucracies and markets can work to pursue the social objectives of sustainable development.

So, if we must expect to have the politicians ever with us, it seems we must also recognise there is little chance of escape from the analyst, the bureaucrat, the independent commissions, and unending consultation processes.

Whether that seems like an optimistic or a pessimistic conclusion from our day's discussion must rest, I suppose, in the eye of the beholder.



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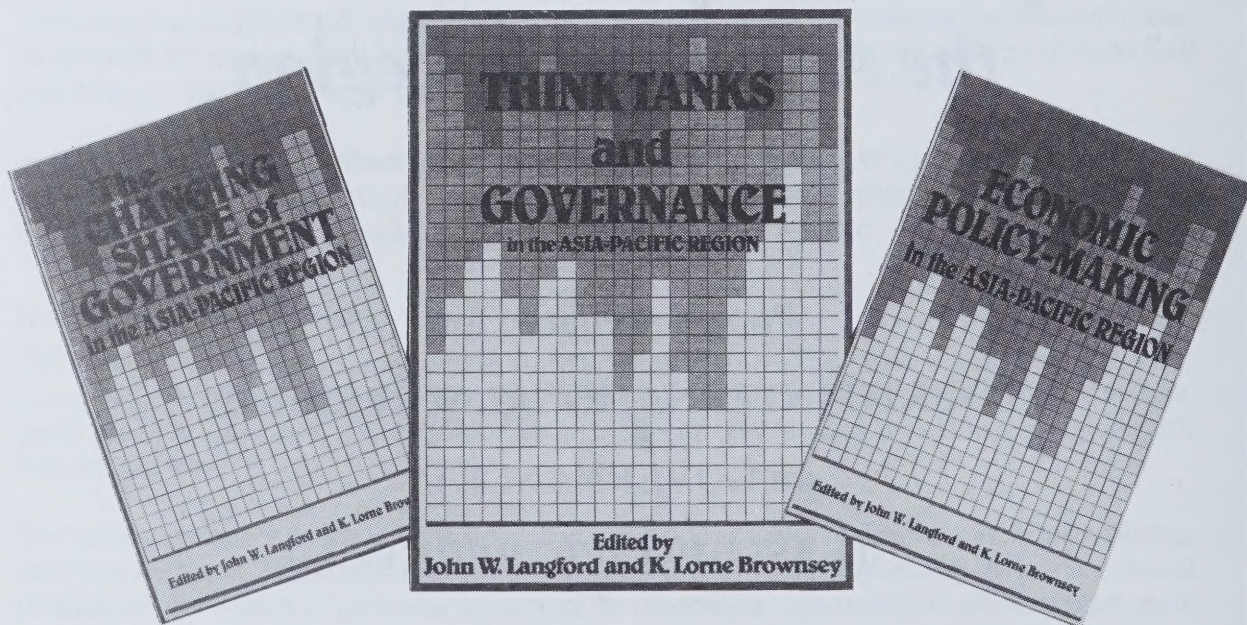
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Sustainable Development and the Machinery of Government

*K. Lorne Brownsey and John W. Langford**

In countries around the Pacific rim, growing public awareness of environmental degradation has prompted much discussion of strategies to promote sustainable and equitable economic development. Although these strategies often differ in approach, they tend to share the conviction that a continuing disregard for environmental integrity will inevitably impair economic growth and development, and that immediate action is necessary to prevent irreparable damage to the global environment.

However, much of our existing political and economic infrastructure and decision-making apparatus is founded on quite different premises and all too frequently fails to account for environmental resources. Led by the path-breaking work of the United Nations World Commission on Environment and Development (the Brundtland Commission), there is a growing consensus that governments must retool their decision-making processes and structures so that environmental considerations are infused into all policy decisions, at all levels of government. In essence, the environment and the economy must be seen as two sides of the same coin. If not, humanity's quest for enhanced economic well-being will inevitably be at odds with the natural environment.

At the same time, there is significant concern in developing economies that those countries most in need of rapid economic growth and least responsible for the consumption and industrial habits that threaten global ecosystems are being pressured towards a development path that will perpetuate their subordinate positions in the world economy.

The problem, therefore, is for individuals, businesses and government alike to seek new, innovative and equitable ways to marry the equally important and complementary goals of economic and environmental health.

What this imperative means to the development of public sector institutions and processes in the governments of the Asia-Pacific region was the focus of the fourth workshop on the changing shape of government organised by the Canadian Institute for Research on Public Policy. The papers that follow, and the discussion on this subject at a three day meeting in Canberra in December 1991, reveal a remarkable diversity in the way that governments in the region are adapting to the dictates of sustainable development. This, of course, should be of no surprise given the economic, political and cultural heterogeneity of this region. However, regardless of how the 13 countries represented at

the workshop go about this transformation, it is clear that all are driven by the firm conviction that changed patterns of decision-making, founded on changed values and attitudes, are critical.

Three models or approaches to institutional reform can be discerned from the national experiences that are presented in this volume. The first might be described as a "top down" approach to refocusing economic decision-making on sustainable development by strengthening the state's capacity to make environmentally sound decisions. By contrast, other efforts emphasise a "bottom-up" approach in which community-based initiatives are central to a policy process which truly embraces sustainable development. Finally, given that both economic and environmental forces largely defy national boundaries, there is growing recognition of the need to develop international governance mechanisms to promote sustainable development.

Obviously these approaches are not mutually exclusive and, as the following papers suggest, in most jurisdictions efforts to restructure the institutions and processes of governance employ a mixture of all three.

SOME EXISTING SHORTCOMINGS

Although the goal of sustainable development has received near universal endorsement, it has yet to be fully realised in any country. The papers and the workshop discussion identified some hurdles, common to most countries in the Asia-Pacific region, that must yet be cleared before an integration of environmental protection and economic development is possible.

One of the shortcomings identified in the Asia-Pacific region is the degree to which decisions affecting prospects for sustainable development are dominated by key economic ministries and agencies committed to economic growth and other status quo values such as competitiveness, order, or placating financial markets. Jin-Young Chung, for example, describes a situation in Korea where pro-development ministries (finance, energy, agriculture etc.) make the important decisions that "are usually at the source of the accelerated draw-down of our environmental resource capital", leaving weak, under-resourced ministries of environment to deal with the impact of their policies. According to Ponciano Intal of the Philippines and others, this situation challenges environmental agencies to catalyse the process of changing the "world view" or "development ethic" of other departments. It must be noted that there was some controversy at the workshop over this categorisation of government agencies into those that were development-oriented versus those that were conservation-oriented. Several participants argued that the culture of all bureaucracies was changing as a result of an internalisation of environmental values.

With development-oriented ministries making most of the key decisions, the authority or influence of the ministries of environment is accordingly circumscribed. In most juris-

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dictions, they are considered to be in the lower ranks of the ministerial "pecking order". As a junior ministry, environmental agencies are relegated to the roles of reactive standard setting, policing, punishing of offenders and advising. Obviously, these are not unimportant tasks, but they are curative, not preventative, in nature. There is little evidence in the region that ministries of environment are empowered to make or influence decisions at the front end of the development process where the potential for making real change in the direction of sustainable development is greatest.

... with regard to the locus of authority and responsibility, the international dimension of environmental degradation was identified as a governance issue of significant proportion. The absence of effective supranational decision-making processes and mechanisms for sharing and transferring information, resources and technology was seen as an impediment to the global effort required to implement a sustainable development strategy.

The dispersion of environmental protection powers, with resulting overlaps and voids, is also a problem in many Asia-Pacific countries. In Thailand, Arthorn Saksit points out that environmental problems have been exacerbated as a result of "the scattering of implementation agencies under different departments which have their own policies on both development and natural conservation". He notes that even when Cabinet approves environmental initiatives, department heads have significant discretion with regard to implementation.

This problem takes a different twist in federal systems of government, with multiple layers of power and jurisdiction. In Malaysia, for example, Portiah Hamzah acknowledges the importance of the Ministry of Environment's coordinative functions given the multiplicity of authorities at the national, state and local level, but suggests that its power is somewhat limited. In most instances, the final decisions on environmental policy are ultimately left to the "relevant states and agencies".

Finally, with regard to the locus of authority and responsibility, the international dimension of environmental degradation was identified as a governance issue of significant proportion. The absence of effective supra-national decision-making processes and mechanisms for sharing and transferring information, resources and technology was seen as an impediment to the global effort required to implement a sustainable development strategy.

Another area in which there is some common concern in the Asia-Pacific region is the ability of environment ministries to "hold on" to the skilled, technical staff they require to carry out their responsibilities effectively. Specifically, the issue of "brain drain" to other countries or the private sector was identified by several participants at

the workshop. Along with this manpower shortage, many participants noted the inadequacy of the information base from which policy is developed and welfare measured. Efforts to move beyond traditional accounting techniques and economic evaluations were considered to be vital.

These, then, are some of the problems countries in the Asia-Pacific region face as they move towards development of a social framework that seeks not to balance environmental protection and economic development, but to integrate the two. There are many others as well; poverty, population, education, being paramount among them. This brief identification of problems does, however, provide a sense of some of the challenges that motivate the institutional and process reforms ongoing or contemplated in the region in the pursuit of sustainable development.

TOP-DOWN INITIATIVES

Enhancing the bureaucratic and technical capacity of the state to advance sustainable development is the dominant feature of the so-called top-down reforms. In the Asia-Pacific region, governments are pursuing or contemplating a number of initiatives to strengthen their analysis, coordination and decision-making abilities.

Many workshop participants emphasised the importance of government efforts to revise current economic accounting systems to reflect fully the significance of natural resources in development and to develop sustainable development and state of the environment indicators. Both Roy Cameron of Australia and Portiah Hamzah (Malaysia) stressed the need for broader and more encompassing methods of assessing growth and quality of life. As Portiah Hamzah wrote in her paper, reliance on traditional measures of "national income such as GDP give misleadingly favourable estimates of economic well-being or economic growth". Indicators are required that focus attention on the inputs at the front end of the development cycle — energy, natural resources, chemicals and the like — and on policies to influence their utilisation. Generation of this information was widely held to be important in order to provide the analytical underpinnings to make possible decisions that integrate environmental and economic objectives. Rod Dobell (Canada) and others, however, cautioned that while progress in this area is possible and necessary, "the prospects for dramatic improvements in comprehensive analysis are vastly oversold" and, regardless of the comprehensiveness of the information base, political decisions will still be required.

Virtually all countries in the region recognise the need for institutional innovations to integrate sustainable development into the highest level of government decision-making. Little progress was seen as possible without the endorsement, commitment and guidance of the most senior policy-makers. For Peter Chou and Raymond Lin, this belief finds its concrete expression in Taiwan in the creation of an Environmental Protection Committee of the Executive Yuan (cabinet) chaired by the Vice-Premier and composed of heads of ministries, agencies, experts and scholars. Similarly in Thailand, proposals to restructure the Office of the National Environment Board includes a recommendation that the Prime Minister be the chairman of the organisation.

The consolidation of environmental legislation and the rationalisation of the existing dispersal of environmental responsibilities among various levels of government were

also seen as important government-initiated changes in support of sustainable development. Simon Terry, for example, spoke of New Zealand's recent *Resource Management Act* which integrated existing environmental law into a single statute for the management of natural and physical resources. Clive Hamilton from Australia suggested that this type of consolidated legislation could provide a much-needed "policy coordination framework" which in turn "would be an important vehicle by which entrenched attitudes in traditional development-oriented departments could be shifted."

In other jurisdictions rationalisation of environmental planning is an important task for policy-makers. Prijono Tjip-toherijanto writes of the need in Indonesia clearly to delineate "relationships and responsibility-sharing" between national and provincial authorities in "order that lines of management become clear and simple". Ponciano Intal and Jose Tan's paper on the Philippines notes the importance of Regional Physical Framework Plans in rationalising land use and environmental planning at the provincial and municipal levels.

Sustainable economic development may also require some fundamental rethinking of how the state organises and manages resource endowments traditionally under its purview, such as forests or fisheries, or even common resources such as air and water. In a number of jurisdictions in the region, property rights have been created in various natural resource sectors and, in the process, market incentives have been provided to encourage individuals and firms to conserve and protect environmental amenities in their own economic self-interest. These include depositor's refunds, emission charges, marketable pollution permits, delay penalties and financial incentive schemes, and property rights schemes. Stuart Harris from Australia suggested that business can adjust more easily to market mechanisms than to regulations. This makes market mechanisms more efficient and less expensive. On the other hand, several participants noted that the adoption of such mechanisms would not lead to a wholesale relegation to the markets of traditional public sector activities, as functions such as monitoring compliance, collection of data and enforcement of regulations would demand a continuing role for government agencies. Richard Wong spoke of a situation in Hong Kong where industry, in fact, is alarmed about the economic incentives approach because they have been very successful in manipulating the existing command and control system of environmental regulation.

A BOTTOM-UP APPROACH

A number of the papers suggested that greater local control over decision-making was central to the notion of sustainable development. There was considerable sentiment that the ultimate arbiters of any system that takes environmental values seriously are the people and communities most directly affected. Representatives of the 13 Asia-Pacific countries present at the workshop spoke and wrote of a variety of efforts to build a "bottom-up" decision-making system which embraces sustainable development.

A number of defining characteristics of a bottom-up decision-making system that seeks to integrate economic and environmental factors were identified at the workshop. They pointed toward a process skewed in favour of community control (versus state-centrism), emphasis on the values and

knowledge of affected citizens (over those of experts), consensus decision-making (as opposed to majority rule or appeals to higher authority), a holistic view of decisions (rather than a sectoral view), and openness (over secrecy).

A number of the papers suggested that greater local control over decision-making was central to the notion of sustainable development. There was considerable sentiment that the ultimate arbiters of any system that takes environmental values seriously are the people and communities most directly affected.

Rod Dobell, in his paper on Canada, sketches an innovative scheme to move decision-making down the ladder to the community level. He describes the developing institutionalisation of community roundtables composed of representatives of business, local government and citizens groups which will make the critical decisions on economic development in the affected communities. Dobell suggests that these roundtables are "the next step in implementation of sustainable development." The centrality of local input was also stressed by John Waiko from Papua New Guinea who stated that problems and conflict would be the inevitable result if national and provincial authorities ignored local interests. In particular, Waiko pointed to the need for decisions concerning economic development to be reconciled with the value systems of indigenous peoples. This concern was echoed in the experiences of a number of other countries and some participants suggested that aboriginal traditions of stewardship of the land and its resources were in fact at the core of the successful institutionalisation of sustainable development.

The interest in localism was not confined to federal states. Saksit Arthorn noted that in Thailand local communities were responsible for development and implementation of economic/environmental development plans which ultimately worked their way upwards to national agencies such as the Office of the National Environment Board. Even in city states such as Singapore there is a growing recognition of the local input. Linda Low notes that even though the "Urban Redevelopment Authority is now the sole authority responsible for planning in Singapore" it has "invited public participation in planning new facilities and towns". And, finally, in his paper on Japan, Hiroshi Ouchi tells of how city or prefectural governments have led the fight, both in terms of policy and remedial expenditures, to combat pollution problems brought about by Japan's rapid industrialisation. He describes an enviable situation where local authorities have strengthened central regulations in a competition to be the "cleanest community". Ouchi also highlights the role of the private sector when he writes that "in the business-oriented societies of Asia, enterprise and consumer decisions to save our natural environment are sometimes more crucial than government policy".

A number of the workshop participants suggested that a key focus of the institutionalisation of sustainable development should be the education and empowerment of citizenry through knowledge. Perhaps the most forceful, and

certainly the most holistic, statement of the role of education is found in the Indonesian paper. Priyono Tjiptoherijanto writes that development must be both environmentally and socially sustainable and that education is central to both. He notes that "education should create the manpower capabilities which function as the driving force of development" and suggests that curriculum should enable pupils to "gain a deeper and more relevant appreciation of the issues of the environment and sustainable resources". Others noted that public participation in decisions related to sustainable development was frequently impeded by lack of information or knowledge. Portiah Hamzah writes of the need to educate the public on the importance of a sound environment so as to encourage "environmentally-sensitive consumer behaviour". At the same time, however, there was some scepticism about the role of the educational system to inculcate environmental values. Concerns were expressed about potential manipulation and bias of school curriculum in the absence of a common vision of society and development.

Income inequalities within and between nations must be reduced and well-being must be pursued in terms other than the quantity and quality of goods consumed. In the absence of these transformations, significant change towards sustainable development was seen by some at the workshop as unlikely. This suggests that central to the efforts of government institutions and processes in this area are those focused on information, education, dialogue and cooperation. In particular, governments and their agencies must lead a change in orientation, for as one workshop participant put it — "Environment is for the rich, sustainability is for everyone".

Consensus decision-making was also considered to be an integral feature of a bottom-up approach to development policy. Concern was expressed by some participants that, in its absence, ecological rationality would simply be grafted on to economic rationality leading to "horse trading" compromises and not sustainable development. The Canadian roundtable experience was cited as an innovative process for alternative dispute resolution. Dobell, however, points out that to date the promise of consensus seeking mechanisms has proven greater than the product. This point is given further voice by Richard Wong who writes that in Hong Kong, "the process of seeking consensus over a highly divisive issue like environmental policy resulted in very limited success".

INTERNATIONAL GOVERNANCE

Many of the most serious environmental issues facing countries in the Pacific rim are regional or global in nature, prompting a number of efforts to deal with them at a supranational level. A number of areas of concern, which

raise the issue of international involvement, were discussed at the workshop. These included global warming, resource management, technology transfer and trade related environmental conditionality. Underlying this discussion was the notion that international relationships must be cooperative to work and involve the acceptance of appropriate levels of mutual restraint.

Workshop participants, while acknowledging the importance of international institutions and agreements, also stressed that these initiatives must address concerns about global equity. Regimes that punish the poor for the sins of the rich were not seen as solutions to global environmental problems. As Portiah Hamzah wrote in her paper, "a lifestyle very much taken for granted by one community, may be unacceptable to others who are still struggling with pressing issues of poverty. Global collective governance should be viewed in relation to the state of development, the population level and must respect the aspirations of the poor and impoverished". This consideration of differing levels of development suggested the need for international mechanisms to promote the transfer of resources and environmental technology from developed to developing countries. A number of schemes for this purpose were proposed at the workshop or in the following papers. Hiroshi Ouchi writes of recent Japanese efforts to enhance the environmental component of its development assistance programs. These include targeted programs in such areas as "pollution control, nature conservation, forestry, human settlement (water supply, sewage systems, waste disposal) and natural disaster prevention". He also notes the creation of several institutes in Japan dedicated to facilitating the international transfer of environmental technology.

Simon Terry, in his paper on energy policy and sustainable development in New Zealand, examines how carbon taxes and tradeable permit rights can be used to reduce global warming. He suggests that while global conventions would be required to implement both systems, internationally tradeable permits would promote wealth transfer if the permits are allocated on a per capita basis. During the course of the workshop, Ponciano Intal expressed some doubts about such a scheme and wondered whether full cost pricing for permits could be achieved. He posited that a better structure might be to transfer funds from developing countries into such organisations as the Asian Development Bank which, in turn, would make available low interest loans to developing countries for the purpose of improving environmental technology.

Lubya Zarsky's paper, which was presented by Peter Hayes at the workshop, focuses on the role that international trade plays in "promoting — or inhibiting — ecologically sustainable development". While acknowledging that there is much sentiment for insulating trading principles from sustainable development, Hayes and Zarsky argue for the integration of the two and the incorporation of "environmental conditionality into trade rules at the GATT". Again, however, in recognition that environmental conditionality could be implemented in a way that violates liberal trade principles to the detriment of developing countries, Zarsky writes that there is a need to determine, and then act upon through the process of international transfers, the "technology and financial requirements of developing countries in meeting higher environmental standards".

A QUESTION OF VALUES

The following papers, and the discussion on them at the workshop, suggest that government has a critical role to play in the promotion of sustainable development, and its machinery must be altered in order to carry out this role. Much government-led progress to integrate sustainable development into the policy-making process was noted. However, any optimism that this progress might engender must be tempered by the knowledge that the ultimate achievement of sustainable development depends not only on the appropriateness of the machinery of government employed, but also on significant shifts in values or social

ground rules that define mankind's relationship with each other and the natural environment. Income inequalities within and between nations must be reduced and well-being must be pursued in terms other than the quantity and quality of goods consumed. In the absence of these transformations, significant change towards sustainable development was seen by some at the workshop as unlikely. This suggests that central to the efforts of government institutions and processes in this area are those focused on information, education, dialogue and cooperation. In particular, governments and their agencies must lead a change in orientation, for as one workshop participant put it — "Environment is for the rich, sustainability is for everyone".

Ecologically Sustainable Development IMPLICATIONS FOR GOVERNANCE IN AUSTRALIA

Clive Hamilton*

THE BACKGROUND

For several years governments in Australia have found themselves caught up in major public disputes about how best to use Australia's natural resources. Environmental concerns have been foremost in the minds of voters and have caused governments to fall. The Commonwealth Government decided to do something about it. In July 1989 Australian Prime Minister Hawke made a statement entitled *Our Country Our Future*, now referred to wryly as the "World's Greatest Environment Statement". This was followed by a national summit of industry, conservation groups and trade unions to discuss an approach to resolving the environmental issues which were crippling the polity.

Arising from the summit, the Commonwealth Government established an interdepartmental committee (IDC) to write a discussion paper on the issue of sustainable development and to suggest a way forward. Chaired by the Department of the Prime Minister and Cabinet (PM&C), the IDC was comprised of senior officers from the national Departments of Primary Industries & Energy (DPIE), Industry, Technology & Commerce (DITAC), Arts, Sport, the Environment, Tourism & Territories (DASETT) and the Treasury. In June 1990, the IDC produced a paper entitled *Ecologically Sustainable Development: A Commonwealth Discussion Paper*. Following a period of public comment on the discussion paper, the Commonwealth Government established nine working groups to consider the steps that need to be taken to achieve ecologically sustainable development

(ESD) in sectors of the Australian economy where competing uses of natural resources have created conflict.

THE WORKING GROUPS

The Commonwealth Government did not have a clear idea of the outcomes it expected from the ESD process, of which the working groups have been a critical phase. It can hardly be blamed for that since the issues are so large, complex and new. The establishment of the working groups was seen by some as an important attempt to break through the entrenched hostility and mistrust that has marked the environment debate in Australia for several years. This standoff was seen by senior ministers as a serious barrier to both economic progress and environmental protection.

The nine working groups had 133 members and were chaired by three independent experts — Professor Stuart Harris (manufacturing, mining and energy production), Dr Roy Green (forest use, fishing and agriculture), and Professor David Throsby (transport, tourism and energy use). As academics and, in the case of Dr Green, as a senior manager in the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the chairs were selected in part for their perceived non-partisanship. The original Cabinet proposal would have seen most of the working groups chaired by DPIE, a proposal that would have torpedoed the whole process. The affiliations of the 133 members are shown in Table 1 (p. 66). The conservation movement was split in its attitude to the ESD process with Greenpeace withdrawing early.

The public servants in the groups have been classified according to whether they hail from departments or agencies with a traditional development orientation — such as the DPIE which has traditionally been seen as being close to industry (and which provided more working group members than other departments) — and conservation-oriented departments, such as DASETT and the conservation services. The preponderance of members from traditionally development-oriented departments is not surprising

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given the expertise concentrated in them. The resources of DASETT are spread thinly. The working groups were established on the basis of traditional industry divisions as reflected in the bureaucratic structure. DPIE made a very major staff commitment to the ESD process. Some have expressed concern that the "control" of the working group process by DPIE has disadvantaged conservationist interests. I will argue below that that traditional bureaucratic structure is incompatible with the pursuit of policies of ecological sustainability.

This raises a key issue for the future and provides the theme of this paper. Will ESD policies be developed through horse-trading among opposing conservation and development-oriented departments and their ministers representing opposing "constituencies", or will the presumption of ESD insinuate itself into the thinking of development-oriented departments so that they can no longer be so characterised? Of course the latter, that resource policy departments accept the constraint of ecological sustainability as second nature, is in every way more desirable. Perhaps the key question is how long it will take. The discussion in this paper of institutional forms should therefore be seen as an attempt to develop a transitional program that will effect the conversion of the current administrative structure into one that is compatible with the pursuit of ESD. Above all, ESD will require a fundamental shift in attitudes in the bureaucracy as well as throughout society. Institutional changes must be aimed at accelerating that shift in attitudes.

A clear majority of working group members were public servants. About half (34 of 71) were from State bureaucracies, mostly development-oriented ones. One can only be impressed by the level of seniority of the working group membership from the public service. It reflects a major commitment by the key departments and is an indication of the importance attached to the process. This should not necessarily be interpreted as an acknowledgement of the importance of ESD; it could be a sign of the threat that ESD could pose to traditional decision-makers. By all accounts, the working groups worked very hard, through many long gruelling meetings. A thorough, if somewhat

belated, round of public consultation was also a feature of the process. The timetable given to the chairs was short by any measure and this led to complaints from the Business Council of Australia and conservationists that they had insufficient time to consult with their constituencies in the final preparation of the draft reports. The conservationists, in particular, have a strong philosophical commitment to participatory decision-making within their organisations.

The draft reports

At the time of writing, only the draft reports were available. Several observations can be made. First, for most working groups, through the focus on practical policies, the vision of ecological sustainability has been lost. This mirrors the unwillingness of the Commonwealth in its discussion paper to take an unblinking look at what sort of society we want. It is, of course, the most fundamental and controversial issue, but it is better resolved by all parties developing and stating their views. By default, the "vision" we are left with is the one we have now. What will ecologically sustainable manufacturing, transport and mining sectors look like in 50 years time? An attempt to pick out the grandest themes in each of the sectoral draft reports appears in the Annex to this paper.

Even the most jaded members of the working groups concede that the process has produced an unexpected degree of consensus on many issues. The chairs should be given some of the credit for this, although one would expect that any process that threw together antagonists of long standing and compelled them to write a report would dispel many of the misunderstandings that inevitably emerge when conflicts are fought out through the media.

INTERSECTORAL REPORTS

The sectoral division of the working groups followed the traditional policy responsibilities that evolved to manage the commercial exploitation of natural resources. This division does not reflect the systems nature of environmental problems. In the process of discussions over the establishment of the ESD working groups there was debate over how to treat intersectoral issues — the greenhouse effect, biodiversity, Aboriginal issues, women's issues and coastal development. It was argued by some that key policy tasks would lead to practical proposals in a reasonable time. In the end it was decided that the sectoral route was the more workable. Once again, the traditional administrative structure had a determining influence on the course of the ESD process.

In their deliberations, the working groups were asked to identify cross-sectoral issues (those that affect more than one sector). The chairs took responsibility for the intersectoral issues. Two workshops were held on the issues and papers were commissioned from experts on the topics. The chairs then prepared a separate report with chapters on each of the intersectoral issues, except for greenhouse, on which a further report has been written.

It appears that the structure of the working groups, based on the traditional industry and administrative divisions, has meant that the intersectoral issues have not received the attention they deserve. Because they were hived off to the chairs, debate on intersectoral issues in the working groups was desultory and inconclusive. As a result of the process

Table 1: COMPOSITION OF THE ESD WORKING GROUPS

<i>Affiliation</i>	<i>Numbers</i>
Government — development oriented	36
Government — resource management agencies ^a	6
Government — conservation oriented ^b	19
Government — non-aligned ^c	10
Union	9
Conservation movement ^d	23
Industry	19
CSIRO/academic	11
Total	133

a Includes forestry and energy commissions, rail and water authorities.

b Includes State and Commonwealth environment departments, environmental protection authorities (EPAs), ANPWS, pollution control commissions.

c The non-aligned category covers the Commonwealth Departments of the Prime Minister & Cabinet and the Treasury. It could be argued that these are more appropriately included among the development-oriented departments.

d Consumer and community group representatives have been included in this category. Note that conservation groups boycotted the Forest Use Working group arguing that it would duplicate the Resource Assessment Commission's Forest and Timber Inquiry.

of producing them, the intersectoral and greenhouse reports are seen by some as being too heavily influenced by DPIE. In some respects, the intersectoral issues reflect the conservationists' systems approach to ecological sustainability so that insufficient attention and inadequate treatment of them carries with it, by necessity, a reversion to the traditional development-oriented perspective.

What is ESD?

In the discussion paper that led to the establishment of the nine working groups, the Commonwealth Government defined ecologically sustainable development (ESD) as follows:

Ecologically sustainable development means using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased. (Commonwealth of Australia, *Ecologically Sustainable Development: A Commonwealth Discussion Paper*, Canberra, AGPS, 1990. Hereafter: Australian ESD Discussion Paper.)

This definition was a product of skirmishes among contending parties making up the IDC and the ministers they represented. The use of the term "ecologically" sustainable development has been criticised by some in the bureaucracy and the business community for putting too much emphasis on the environment and not enough on development. Some see it as illogical, arguing that the Brundtland Report's use of the term sustainable development is quite adequate.

The dispute over terminology reflects two very different ways of seeing the problem, and this difference underlies any interpretation of the progress of the ESD process to date and will continue to do so into the future. The issue may be put in the form of a question: What, exactly, is to be managed sustainably? To the conservationists, the essential requirement is to manage ecological systems so that they are not diminished in quantity or quality; development, or economic activity, is made subject to that constraint. To the business community, it is development itself, thought of in terms of economic growth, that must be sustained, recognising that ecological damage can impair our ability to maintain and improve our living standards.

The term "living standards" is itself contentious and reflects the fundamental difference in world-views. To focus on living standards seems to conservationists to embody two errors:

- the pursuit of higher living standards, as traditionally defined, has led to the present environmental crisis; and
- the implicit objective of maximising human well-being should not be the sole focus of human activity.

The latter proposition is a philosophical departure that forms the hidden heart of much of the controversy. Many segments of the conservation movement do not accept an anthropocentric perception of life and the world, preferring instead to adopt a "biocentric" ethic in which the health of the planet is paramount. Moreover, they adopt a systems approach to environmental management in place of the traditional linear one. To business and its supporters, on the other hand, economic activity only makes sense if it is

directed at advancing human welfare. More progressive elements on this side of the fence concede that the components of human welfare must now be defined more broadly to include aspects of the natural environment that people want to preserve or improve. This view was adopted in the Commonwealth discussion paper.

A fundamental goal of government is improvement of the community's standard of living. Throughout this paper the community's standard of living is viewed in a broad sense. In addition to income levels or the consumption of goods and services, it includes a range of other things that we value, including the environment, social justice, and personal freedoms. It is thus more akin to the notion of quality of life. (Australian ESD Discussion Paper, 1)

What, exactly, is to be managed sustainably? To the conservationists, the essential requirement is to manage ecological systems so that they are not diminished in quantity or quality; development, or economic activity, is made subject to that constraint. To the business community, it is development itself, thought of in terms of economic growth, that must be sustained, recognising that ecological damage can impair our ability to maintain and improve our living standards.

Nevertheless, conservationists were very critical of the discussion paper, arguing that:

[t]he framework adopted in the discussion paper for defining ecological sustainability is conceptually flawed, in that the principles adopted are not sufficient or adequate to achieve ecological sustainability Where economic demands are not reconcilable with environmental concerns the latter are to be sacrificed "to ensure present and future economic benefits." (W.L. Hare et al, *Ecologically Sustainable Development: A Submission*, Australian Conservation Foundation and other conservation groups, August 1990.)

The discussion paper was a thorough attempt to cover the general issues of sustainable development and one could not expect a committee to produce other than a camel. Perhaps unavoidably, the IDC fudged the fundamental issue of conflict over resource use. Throughout it maintains that everywhere we can have growth and environmental protection and does not acknowledge that some of our current economic activities are unsustainable. Nowhere does it discuss the root question of what the social goals of ESD are or should be. Implicit throughout the paper is the assumption that the traditional economic goals of government policy remain; all that is needed is some tinkering at the edges to protect the environment when development goes too far. Put starkly, the paper does not tackle the issue of what sort of society we want — David Suzuki's or Alan Bond's.

The ESD working groups appear to have modified the discussion paper's definition of ESD so that the words more closely approach a conservationist perspective. This would appear to have been essential to secure the committed participation of conservationists. In the preface to each of the draft reports it is stated that ESD "is seen as the way we use, conserve and enhance the community's resources so that our total quality of life, both now and in the future, is secured". The preface goes on to observe that:

[i]n comparison with the concept of sustainable development embodied in the WCED [Brundtland] report, it can be argued that ecologically sustainable development involves less scope to trade ecological values and natural resource use for current consumption without adversely impacting on options for future generations.

The softening of the economism of the definition of ESD is unsurprising since the IDC that developed the discussion paper definition was dominated by bureaucrats from Commonwealth departments largely wedded to economic rationalism. DPIE, DITAC and Treasury were ranged against DASETT, with PM&C in the chair trying very hard to obtain an agreed outcome. Ultimately, however, ministers approved the discussion paper.

This discussion of definitions may appear to be hair-splitting. After all, both sides of the debate recognise the interdependence of economic activity and the natural environment. But the difference in world-views encapsulated in the definitions will assert itself over and over again as governments attempt to develop and introduce policies and processes that bring about an economic and social structure that is both ecologically and economically sustainable.

A key question is whether the process of consensus-making in the working groups (which fell away as the reports were finalised) permitted the tabling of the full range of policies that will be necessary to achieve ESD in due course, or whether some elements dropped out through non-agreement. The draft reports do not insist on unanimity and often refer to proposals that were supported by only some members of the group. Some issues reflect irreconcilable ethical differences that, in practice, will be decided in the future through decisions on particular cases. The issue of land access is a critical one and underlies the lack of consensus in the mining working group. In many instances, however, though their positions may be informed by irreconcilably different world-views, the practical differences will be matters of degree. Some key questions will be ones like:

- how quickly should greenhouse gas emissions be reduced?
- how much of the area of native forests should be preserved?

- how large should the penalties or inducements be to eliminate soil erosion?

In some cases, nevertheless, the differences in perceptions about the pace of change are so large that they take the form of absolutes. For instance, while everyone agrees in principle that energy sources should ultimately be renewable, the extent to which conservationists, the industry and bureaucrats see the transition to energy sustainability as technically attainable represents a crucial difference in perceptions of how the world works, or can work*. In addition, agreement on words does not exclude the possibility of sustained arguments over practical policies. There is many a slip 'twixt cup and lip.

Bureaucrats will be required to provide advice to governments on all of these issues and the bureaucrats will be heavily influenced by their own world-views, by what they perceive as sensible and feasible actions. I will comment later on the fact that, at present, key parts of the Commonwealth and State bureaucracies are dominated by bureaucrats who are predisposed to economic rationalism and that this will represent a major obstacle to the transition to ESD.

ESD as a policy watershed**

There is a perception still current in Australia that concern about the environment is only a fad. When it comes to giving up real things people's concern evaporates. Some senior policy-makers have expressed this view in private. Such a belief is increasingly difficult to maintain. The problems and costs of unsustainable development will not go away. This is so for two reasons, both of which underlie the policy volte face that ESD requires.

First, the changes in social attitudes that have led to the initiation of the ESD process are now entrenched. Opinion surveys show consistently that concern about the environment is a national preoccupation. The level of community activity reflects this. Any adult with children at school will know that curricula throughout the country have environmental issues as a major theme. This process of sensitisation will influence future generations profoundly.

Secondly, damage to the natural environment will worsen, or at least not improve, for many years. The pressures of world population growth and the demands on natural resources by developing and developed countries will be nigh impossible to reverse except in the long run. The Toronto Agreement calls for a 20 percent reduction in greenhouse gas emissions by the year 2005, which means that, even if it is achieved, large quantities of greenhouse gases will continue to enter the atmosphere for many decades. Catastrophic oil spills like that of *Exxon Valdez* and those of the Iran-Iraq War will in all likelihood recur. Depletion of non-renewable resources will continue as long as adequate renewable alternatives remain elusive.

This means that it would be a mistake to see ESD as a set of discrete policies that need to be developed and implemented over the next few years. In October 1991 the then Commonwealth Treasurer, John Kerin, said that ESD should not be regarded as a set of "one-off institutional changes, and then . . . back to business as usual". (John Kerin, "The place for the environment in an economically rationalist world," *Australian Quarterly*, 63(4), Summer 1991,

* In the energy production working group, however, representatives of the utilities showed a willingness to plan for a future in which renewable sources of energy replace the present reliance on coal and oil.

** This paper does not consider the international implications of ESD, since those issues are the subject of a separate paper by Lyuba Zarsky contained in this issue of *CBPA*.

358–367, 359). The ESD process represents a watershed in Australian government policy-making every bit as important as the establishment of the welfare state.

This has two broad implications for public policy. The first is that ESD will be an evolving process. There are no instant solutions that can be developed to solve the problem, only steps along the way. As John Kerin stressed, there is no end-point to the process. It would be quite wrong for bureaucrats to see ESD as a policy issue that has come up, is solved by some decisions and policies that are put in place, after which they can move on to the next issue that comes up. The ESD working groups, then, are only the first step, albeit a very large one, on the long road to an ecologically sustainable society.

The second broad implication of the fact that achieving ESD is not a one-off set of policy changes, but a fundamental objective of virtually all government policy, is that if ESD is to work it needs to be thought of as an objective or constraint that underpins all government policies that affect natural resource use. This means virtually all policy. We must therefore anticipate far-reaching and often subtle shifts in the way governments and their agencies and departments approach policy formulation and implementation. Some of the institutional changes that will be necessary are discussed in later sections. The most fundamental changes that policy-makers will need to absorb include the following.

Time scale of policy

At present few policies are developed with a time horizon of more than a few years (superannuation is an exception). The fact time horizons generally do not exist results in the future disappearing into a fuzzy unknown. ESD will require that policy-makers set horizons and set them at several decades into the future.

Information requirements

Long-time horizons imply that we must collect more data on likely impacts of changes. Under the precautionary principle, uncertainty becomes a constraint on activity. The systemic nature of ecological problems requires that different types of data be collected and factored into decisions. In addition to greater support for existing data bases and information systems (for example, ERIN, NRIC and NFI), new techniques must be developed to assess and compare ecological and economic values. The framework of environmental impact statements must be broadened to account for:

- cumulative effects of resource use decisions;
- more thorough assessment of alternatives to proposals; and
- the explicit incorporation of economic costs and benefits of proposals and alternative developments (either into an EIS or via a separate economic impact statement). (The Sydney Third Runway EIS, a critically important one, has been criticised in the press for failing to do the last two of these adequately, and has lost some credibility as the basis for a decision.)

A new assessment framework incorporating the environmental, economic and social impacts of proposals will be an essential institutional precondition for the transition to an ecologically sustainable society. The Resource Assessment Commission is a good model for tackling broad resource use issues.

Public participation in policy

ESD will require a greater acceptance of the role of public participation and consultation in the policy formulation process. The working groups have established the importance of involving industry and conservation groups. Continued participation is necessary to ensure the sustained flow of ideas and to provide the conduit by which the concepts and requirements of ESD are fed back to the community and accepted by it.

In October 1991 the then Commonwealth Treasurer John Kerin said that ESD should not be regarded as a set of “one-off institutional changes, then back to business as usual”. The ESD process represents a watershed in Australian government policy-making every bit as important as the establishment of the welfare state.

Intersectoral issues

The organisation of government departments and resource management agencies according to the old ethos of resource exploitation is inappropriate to the intersectoral and systems requirements of ecological sustainability. Intersectoral issues are too important to be allowed to fall through the cracks of the traditional organisation of government administration. Issues such as greenhouse gases and biodiversity will require policy packages in their own right, and these will cut across traditional divisions within bureaucracies and between bureaucracies at different levels of government. Some ways in which this may be carried out are explored in subsequent sections.

Demise of economic rationalism

ESD will require reorientation of the key economic departments away from economic rationalism and a shift away from the traditionally paramount policy objective of maximising long-term economic growth. Progress towards ESD will require a substantial renewal of personnel at top levels. ESD undoubtedly produces a challenge for economic rationalism or, rather, requires the redefinition of what is rational. The question that has been posed is this: Under what circumstances can private markets, which control or influence the use of the great bulk of natural resources, achieve ESD? Clearly, private markets in the past have not led to the management of natural resources in an ecologically, or economically, sustainable way. Markets need to be changed in the way they operate, and new markets need to be fostered. The structure of incentives must be adjusted to induce producers and consumers to behave in ways that are consistent with ESD. ESD will be pursued through

markets, but markets operating within socially determined constraints. The ESD working groups have recommended dozens of ways in which this can be achieved.

If taken seriously, ESD poses a fundamental challenge to the traditional approach of economics. The philosophy and practice of economic rationalism is that governments should focus on the means and not the ends of policy, so that if markets are functioning efficiently their outcomes will be socially optimal. ESD, on the other hand, inverts this process by setting policy targets that will shift us towards ecological sustainability. Markets and government regulations are then constrained or organised to achieve the targets. This inversion is directly contrary to the drift of economic policy over the last decade. Economic rationalism, as currently practised, and ecological sustainability are mutually exclusive.

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If taken seriously, ESD poses a fundamental challenge to the traditional approach of economics. The philosophy and practice of economic rationalism is that governments should focus on the means and not the ends of policy, so that if markets are functioning efficiently their outcomes will be socially optimal. ESD, on the other hand, inverts this process by setting policy targets that will shift us towards ecological sustainability. Markets and government regulations are then constrained or organised to achieve the targets.

The lack of clarity in the final products of the working groups recedes in importance when we concentrate on the process of developing strategies for achieving an ecologically sustainable society. The process of achieving some reconciliation and greater understanding has been a critical part of the whole ESD exercise. For a decade or more, the conservation movement has set the terms of the ESD process by defining the way of the future, the need for a transition to an ecologically sustainable society. In broad terms, it has carried the Australian community with it.

This is a transition that will inevitably be difficult for business, and the ESD process can be seen as a key component of the process by which the business community is being persuaded that it must soften its oppositionist stance and participate in the transition. The shift in attitudes that is occurring now in the business community is noteworthy. Initially, many businesses reacted to environmental

concerns with a public relations exercise. This has been followed by attempts to capitalise on emerging markets for green products and services.

The third stage is for businesses seriously to attempt to integrate principles of sustainability into their operations, beginning with an environmental audit. Banks that finance companies that might damage the natural environment are becoming very nervous about their liability and are imposing environmental conditions on their lending. The acid test for the business community will come in the next year or two as the initial wave of ESD policies are developed in practice and implemented.

With the publication of the reports of the working groups the ball is now in the Commonwealth Government's court. It must respond in the coming months. There has been considerable preparatory work behind the scenes so that the Government will be in a position to respond in order to carry the process through, if it has the will.

Commonwealth-State relations

The most important fact about management of natural resources in Australia is that they fall principally under the control of State governments. Constitutional responsibility for the development of land and minerals is vested in the States. The situation has changed, however, according to Davis:

intergovernmental relations in Australian environmental management are gradually shifting in favour of an increased federal role ... [but] it is clear that the Australian states and territories still carry the principal burden of natural resources management and this appears likely to continue into the foreseeable future. (Bruce Davis, "Environmental Management", Brian Galligan et al., *Intergovernment Relations and Public Policy*, Sydney, Allen & Unwin, 1991, 158-159.)

The Commonwealth has considerable powers in some areas. In particular:

- the Australian Constitution gives the Commonwealth power to prohibit exports and imports;
- the Commonwealth has power with respect to corporations (foreign, trading and financial) allowing it to impose regulations;
- the Commonwealth can intervene in an environmental matter where an obligation under an international treaty is involved, such as World Heritage Listing;* and
- the Commonwealth can also apply conditions to its financial assistance to the States to influence their policies. (See Brian Galligan and Georgina Lynch, "Integrating Conservation and Development: Australia's Resource Assessment Commission and the Testing Case of Coronation Hill," draft paper prepared for the North Australia Research Unit, Darwin, September 1991.)

Progress towards ESD will be achieved in Australia to the extent that both Commonwealth and State governments are committed to it. A Special Premiers' Conference at which the ESD process was third on the agenda, after the new

* The UNCED meeting in Brazil in 1992 is aimed at obtaining an international agreement on climate change. When one considers the extent to which greenhouse issues influence and are influenced by economic activity (for instance, each working group was asked specifically to consider greenhouse issues within each sector) the potential increase in Commonwealth powers is enormous.

federalism* and unemployment, was scheduled to follow the release of the final reports. The late cancellation of the conference does not augur well for a new era of Commonwealth-State cooperation. The new federalism, of course, is closely bound up with the issue of ESD. The Commonwealth would like to obtain the agreement of the State premiers to a mechanism for dealing with the recommendations of the working groups, recommendations that will take a great deal of planning and coordination to implement effectively. At the Premiers' Conference the establishment of a Commonwealth-State ESD Working Group would have been proposed with the goal of working through the ESD final reports, assigning priorities to reforms, and advising on how they can be implemented. It was anticipated that the existing Commonwealth-State Ministerial Councils — such as the Australian Forestry Council, the Australia and New Zealand Mining and Energy Council and, especially, the Australia/New Zealand Environment and Conservation Council — would have their charters expanded and their importance enhanced.

If the model of the Premiers' Conference is to be followed, new structures will be needed to deal with intersectoral issues that cut across traditional decision-making divisions, such as the greenhouse effect and biodiversity. This will require considerable efforts of consultation and cooperation. These issues will ultimately need to be decided upon by the Commonwealth-State ESD Working Group itself, and the premiers at the Premiers' Conferences.**

On the face of it, the inter-governmental requirements of ESD appear to dovetail neatly with the Hawke Government's proposals for a new federalism. However, the new federalism (should it survive) was not developed principally with ESD in mind. The conservation movement has expressed serious reservations about it,*** fearing that it will involve handing Commonwealth powers over resource use to the State governments. In the past, State governments have had a stronger development ethos than the Commonwealth and have appeared to be more amenable to lobbying by business interests. The Commonwealth has appeared more sympathetic to green concerns. This has been manifested in several spectacular cases in which Canberra has overruled State governments, cases such as the Franklin Dam, the Queensland wet tropics, the Wesley Vale pulp mill, and mining at Coronation Hill.

There are several aspects of the mooted enhanced role of Commonwealth-State decision-making on the environment that should be noted.**** First of all, there is some misunderstanding about the implications of the new federalism for resource use and the environment. The question is not one of whether the Commonwealth or the States should have the ultimate power to make decisions over how natural resources are used. Given the complexity of the issues — the issues cross State borders, they involve

direct and indirect impacts, and they have international ramifications — it would make little sense to allocate absolute powers to one or other level of government. This is partly because such an allocation would always be subject to revision and partly because the issues are simply not geographically discrete. Powers will always be concurrent rather than mutually exclusive. The question is one of clarification of powers, the distribution of which in the Constitution has become muddled by changing ecological and economic imperatives.

Although the recent history of conservation has been marked by periodic and much-resented intervention by the Commonwealth when it appears that a State government is bent on making a development decision that is contrary to the national interest, a structure in which the Commonwealth does have final power is an appropriate one. The optimal situation would be one in which the Commonwealth has stronger environmental powers but uses them, or threatens to use them, less often. Resource-use decisions would remain principally in State and local government jurisdictions although there would be a range of intersectoral and cross-border issues that would remain with the Commonwealth. The concept of "accreditation" — under which prior agreement would be reached as to which level of government should, for example, carry out environmental impact assessments — is being discussed. While the Commonwealth would play a leading role in establishing national standards and structures to deal with intersectoral issues, the power of last-resort intervention in the national interest would prevail. A proposal for new Commonwealth legislation governing natural resource management is discussed in a later section.

While the situation in which conservationists can appeal to Canberra if they fail to persuade a State government to favour their case may appear to stack the cards against development, the fact is that the Commonwealth Government better represents the national interest which may need to be asserted when the States are acting parochially. Nor is it the case that industry associations are without influence; quite the reverse. The Commonwealth Government must face the electors of each State, and it is quite possible for a government to lose office by failing to win enough seats in one State, such as was perceived to be the case in relation to Western Australia before the 1990 Commonwealth election.

The issue of national versus parochial interests has been a major underlying theme of the environment-development struggle of the last two decades. This is because environmental issues have become national issues. They have done so for two related reasons, one technical and one social:

- many environmental issues concern ecological processes that cross State boundaries — greenhouse, biodiversity, salination of the Murray-Darling Basin, and marine ecosystems; and
- the great wave of environmental consciousness has turned management of certain land areas in particular States into national concerns. Kakadu National Park is held dear by Australians generally, not just Northern Territorians or those who visit it. (Indeed, the Resource Assessment Commission's famous contingent valuation study found that Australians outside of the Northern Territory value Kakadu more highly than Territorians;

* The new federalism was a policy initiative of the Hawke Labor Government to rationalise the workings of the Federation. The initiative stalled in late 1991 on issues of State revenue-raising powers. The future of the initiative under Prime Minister Paul Keating has yet to be determined.

** Premiers' Conferences are meetings of heads of Australian governments, usually chaired by the Prime Minister of Australia.

***Phillip Toyne, Executive Director of the Australian Conservation Foundation, expressed these reservations at the National Press Club in Canberra on 6 November 1991.

**** I am indebted to Brian Galligan and Doreen Barrie of the ANU Federalism Research Centre for some of these ideas.

see D. Imber, G. Stevenson and L. Wilks, "A Contingent Valuation Survey of the Kakadu Conservation Zone", RAC Research Paper Number 3, Canberra, AGPS, 1991.)

The broadening of concern has been reflected in the development and use of techniques for valuing natural resources. Economists now speak of the use-values of resources (traditional economic uses such as logging of forests but also uses such as recreation), and non-use values which reflect the "psychic" value derived by people from the knowledge that a resource is well managed. In the latter category is included the "existence value" of national parks, the value people attach to national parks simply because they know they are there and are protected. This extension of the concept of economic value has led to the development of techniques for measuring non-use values, contingent valuation being perhaps the best-known method. Because people in Sydney value Kakadu National Park even though they will never visit it, the preservation of Kakadu is a national issue, and this creates tension between Commonwealth and State governments. While the Commonwealth Government may not give much credence to the dollar values of a contingent valuation survey, it is unlikely to ignore the relationship between expressed willingness to pay to preserve the environment and votes.

The fact that traditional resource management agencies are not seen to have managed natural resources in an ecologically sustainable way provides a strong argument for augmenting the existing structure with a Commonwealth body charged with advising on and monitoring the implementation of ESD.

Several of the working groups have recommended that new methods of valuation be explored and applied. Any response to the persistent call for the pricing of natural resources to reflect the full social costs of their use must rely on estimation of these values. So does the notion of a community return on resource uses. In the forestry case, the full social cost of producing a log includes the opportunity cost of the land for conservation purposes. If the community's valuations were factored into royalties so as to eliminate distortions, the impact on the industry would be substantial.

Ministerial councils

There appears to be a consensus emerging that ministerial councils will perform the critical coordination function between levels of government in implementing ESD. Currently, ministerial councils are an important mechanism for the exchange of views and coordination of broad policy directions. Some people in Canberra are arguing for a strengthened system in which councils would aim to reach agreed positions on policy actions. There are three major implications of this approach for the system of government and for the implementation of ESD.

Firstly, ministerial councils limit the opportunities for community participation in decision-making. They are one-step removed from constituents and constituent groups and tend to be the province of bureaucrats. The new federalism, so far as it depends on high-level intergovernmental meetings to make important decisions, takes the policy formation process further away from the community. Assigning a large role to ministerial councils in the implementation of ESD would be contrary to the spirit and practice of the ESD process to date. This problem can be resolved in part by the establishment of non-executive consultative committees with broadly representative membership, such as is the case with the Great Barrier Reef Consultative Committee.

Secondly, to the extent that ministers who sit on these councils would be bound by any decisions made by them, ministers would find on returning to their States a cabinet, a parliament and an electorate that would have participated less directly in the decisions and which could demur only at the cost of undermining the whole ministerial council process, a process designed to reach agreement cooperatively. The ministers would be less responsible to the parliamentary process that empowered them and more committed to a high-powered, central body that represents a semi-autonomous level of government once-removed from representative government. If constituents strongly object to an agreement after it has been made, their protests can have little impact. It is possible that this can be overcome by thorough consultation and debate at home before ministers enter into negotiations. (All of these problems with ministerial councils apply with varying force to international negotiations.)

The third problem with the ministerial council approach to ESD is that councils with enhanced decision-making powers would feel constrained to reach unanimity. The danger then is that policy action will be set by the lowest common denominator, or the government that is least committed to protecting the environment. ESD would have less chance of success than a Commonwealth referendum. If the council does not feel constrained to reach unanimity but decisions are binding, some ministers will be sent back to their States with the task of implementing policies that they have opposed. Once again, ESD will suffer. (In the management of the US coastal zone, States may opt out of certain decisions that are deemed to be not nationally critical but they do so at the cost of foregoing federal funding.)

An Office of ESD

The fact that traditional resource management agencies are not seen to have managed natural resources in an ecologically sustainable way provides a strong argument for augmenting the existing structure with a Commonwealth body charged with advising on and monitoring the implementation of ESD. There has been some discussion within the bureaucracy and the working groups of the prospect of an office of ESD within the Prime Minister's portfolio, and akin to the Office of Multicultural Affairs and the Office of the Status of Women.

An office of ESD will be considered by the government. It would probably have three roles:

- to coordinate the development and implementation of ESD policies within the Commonwealth bureaucracy;

- to coordinate the development and implementation of ESD policies between the Commonwealth and the States; and
- to sustain the involvement of conservation, industry and community groups in the ESD process.

The office of ESD may have a fourth role, that of monitoring natural resource management legislation, to be discussed in the next section.

While the conservation groups are predisposed to the idea of an office of ESD or similar body, industry is concerned that it might mean another layer of government. Commonwealth bureaucrats are concerned at the proliferation of special task forces to handle particular issues outside of the mainstream departmental structure and at the erosion of traditional lines of responsibility.

Despite these concerns some form of central policy formulation and coordination body is essential to carry through the ESD process. Without such a body the momentum of the whole process would be in danger of collapsing, and its direction would be diverted to the point where the consensus that has been built in the working groups and the commitment to the process would be lost. The ESD working groups have been more about process than recommendations. The latter will evolve over time without undermining ESD. If it is institutionally supported after the final reports, the process of getting the parties together will be the lasting contribution of the groups. Through its coordination and consultation functions, an office of ESD could play a major part in resolving and avoiding conflict over resource uses.

In the absence of a central driving force continuing the ESD process, the responsibility for policy development and implementation will fall back on line departments, especially DPIE at the Commonwealth level. If line departments are predisposed to paying lip service only to ESD, or pursue policies of sustainable development which do not represent a break from the past, then the whole ESD process will fail. Conservation groups remain profoundly suspicious of DPIE and would not entrust the ESD process to it. Some have claimed that in the working groups development-oriented bureaucrats were more of an obstacle to a developing consensus than the industry representatives.* Senior officers of DPIE, in particular, are seen by conservation interests to be too close to industries which have acted for years in ways inimical to the health of the natural environment. There is a belief within DPIE that the department has been engaged in policies of sustainable development for many years and that the ESD process is but another stage in the procession of good management of Australia's natural resources.** However, the ESD process came about because many people do not accept that point of view. Whatever the truth of these perceptions, many people, especially conservation interests, would have

little confidence that the perceived present corporate culture of a department like DPIE is consistent with the pursuit of ESD.

Moreover, allowing the process to be absorbed into the existing departmental structure would leave DASETT in its present difficult position, forced to fight battles on many different fronts with inferior bureaucratic armoury. The conservation movement would not be happy to see its ideas and interest represented in this way. The upshot would be that industry and the conservation groups would be left out in the cold and be compelled to revert to their previous roles as political lobbyists. The importance of securing the committed participation in the working groups of the green groups in particular should not be underestimated. It represents a historic shift in the *modus operandi* of the conservation movement, one achieved in the teeth of opposition from the more radical groups who fear cooption and the institutionalisation of their social roles. Industry is less concerned about continued participation now, largely through fatigue, but if ESD is to work it must secure the continuing involvement of industry in policy formulation and implementation. Industry is likely to accept that.

For all of these reasons, the establishment of an office of ESD or a similar body, will be a real test of government commitment to ESD and a new way of doing things. The model of participation and agreement envisaged here has been pioneered in the development by the Hawke Government of industry plans and the Resource Assessment Commission.

Natural resource management legislation

There are strong arguments in favour of a Natural Resource Management Act (NRM Act). It would establish the general principle of allocation of powers put forward above on Commonwealth-State relations. While the States would retain the main responsibility for decisions over resource management, the Commonwealth would have a coordinating and enforcement role when it comes to intersectoral and cross-border issues and when a decision is regarded as being of national significance.

NRM legislation would have the following objectives:***

- it would lay down the principles to be followed to achieve ecologically sustainable development, so that all concerned are clear about what ESD means;
- it would lay down the guidelines by which policies and proposals can be judged to have met the criteria of ecological sustainability, including the integration of ecological, economic and social values assessed over many generations;
- it would require all legislation for land, water and vegetation resources to be compatible;
- it would define where the powers of control over natural resources reside, clearly delineating the roles and responsibilities of Commonwealth, State and local governments;
- it would clarify property rights in certain generic situations, and reflect some degree of government control over use of natural resources so that uses and obligations can be reviewed as necessary;

* Others have pointed out that officers from line departments have been the only ones able to expose ill-conceived arguments from industry.

** It is conceivable that there is a fundamental shift in attitudes under way and that the denial of any change in direction is a face-saving belief.

***Many of these have been developed by the OECD in its guidelines for natural resource management legislation (see OECD, "Integration of Water Resources Management with Other Government Policies", Draft papers from the OECD Environment Directorate, May 1988).

- it would prevent the Commonwealth from funding any activities that are contrary to the principles of ESD;
- it would require public participation in the formulation of natural resource management options;
- it would define Australia's responsibilities to protect the natural environment under international treaty obligations; and
- it would be subject to regular review and modification as the concepts, goals and practices of ESD evolve.

The most critical change that is needed to facilitate the transition to an ecologically sustainable society is a change in public awareness and attitudes. It is not possible to legislate to achieve ESD tomorrow. The Commonwealth must play an unrelenting leadership role in this process of developing public awareness of, and commitment to, ESD.

The property rights issue is particularly important. Reversing the historical practice under which private property owners have the right to use their land (in particular) in any way they choose unless some case can be made against a particular use, the legislation would impose a generic obligation on both private and public owners of natural resources to manage them in a sustainable way and to gain the approval of the community where proposed uses could impinge on the principles of ESD. This change would be an endorsement of the emerging redefinition of resource ownership as a stewardship arrangement under which owners have obligations to show the community now and in the future that the resources are being well managed on its behalf.

The NRM legislation would attract complementary legislation in the States.* Moreover, since the States deliver many Commonwealth-funded programs that affect natural resources, the legislation would provide the framework for linking Commonwealth and State actions in pursuit of ESD.

Such legislation would have a major impact on the bureaucratic process. It would provide an appropriate framework for policies that deal with intersectoral issues and could explicitly embody the principle of intergenerational equity. It would behave all bureaucrats to incorporate the fundamental criteria of ESD into policy formulation. It would also provide the common central pillar around which interdepartmental policy discussions would revolve. Many a policy discussion has been resolved by someone asserting that "The legislation says". Administered by the office of ESD, NRM legislation would constitute the essential policy coordination framework provided by the government and

would be a most important vehicle by which entrenched attitudes in traditional development-oriented departments could be shifted.

NRM legislation would provide the framework and stimulus for further institutional reforms. To implement the legislation, new institutions aimed at integrating the range of values that attach to natural resources and especially to intersectoral issues would emerge. Institutions such as the Resource Assessment Commission and the Land Conservation Council in Victoria have sprung up to compensate for the inadequacies of traditional institutional structures.

The most critical change that is needed to facilitate the transition to an ecologically sustainable society is a change in public awareness and attitudes. It is not possible to legislate to achieve ESD tomorrow. The Commonwealth must play an unrelenting leadership role in this process of developing public awareness of, and commitment to, ESD. A NRM Act would be the most striking demonstration of the Government's commitment to ESD and would impose a continuing obligation on governments and their agencies to take the issues of ESD to the community. It would be the most definitive response that the Government could make to the reports of the ESD working groups.

APPENDIX

Working group visions for ESD**

The deliberations of the Working Groups were guided by four fundamental goals:

- improvement of individual and community well-being and welfare that does not impair the welfare of future generations;
- the provision of equity within and between generations;
- recognition of the global dimension; and
- the protection of biological diversity and the maintenance of ecological processes and systems.

The task for each working group was to identify the most important problem areas, set some priorities for achieving the changes desired, develop the solutions that meet both environmental and economic goals, and propose time frames for change that take into account the Government's social justice policies and Australia's place in the world. Cross-sectoral and intersectoral issues were also addressed.

1. Agriculture

The vision for an ecologically sustainable agricultural sector is based on a system of agricultural practices, implemented by individual land managers and community co-operative actions, that maintain or enhance the quality and integrity of the environment.

The Working Group recognises that ESD will require that some current farming practices be discarded, other practices be modified and the new and better practices be developed. ESD will be served best via a holistic approach, using whole farm and regional planning to encompass a total catchment area or an identifiable ecosystem.

* The NRM legislation proposed here would differ in structure from the recent Resource Management Act in New Zealand. The latter appears to be aimed principally at regulating the planning activities of local governments.

** I am indebted to Leanne Wilks for preparing this appendix.

2. Forest use

Ecologically sustainable forest use requires an integrated approach to management, accounting for all forest values, which will involve a long-term process of adjustment and institutional change. The main outcome of ESD in forest use is an assurance of the long-term availability of wood in concert with reservation of forests for conservation purposes.

3. Energy production

The Working Group's vision for energy production focuses on the prevention rather than the cure of environmental, social and economic problems. Under ESD, ecological concerns would be integrated with both economic objectives and other aspects of human well-being such that our patterns of energy production and use do not compromise either environmental integrity or intergenerational equity.

4. Energy use

ESD for energy use aims to ensure that the pattern of energy use which meets the need of present day Australians does not compromise the integrity of natural systems or the capacity of future generations to meet their needs.

5. Fisheries

While the current approach to fisheries management already emphasizes a form of sustainability, the Working Group finds that ESD requires a broader view of ecosystem management with fishing activity becoming a subset in overall management of the aquatic resource.

6. Manufacturing

ESD will encompass a robust internationally competitive export oriented manufacturing sector contributing to economic diversity and quality of life. It will be based on environmentally benign products and processes and appropriately located and structured to obviate adverse environmental and social impacts.

7. Mining

The Working Group's vision for ESD sees the mining sector as part of a global industry which contributes no more greenhouse gases than can be safely absorbed. Through its activities, the sector would provide for the maintenance of ecological systems and the protection of biodiversity and ensure that these can withstand the impacts of mining activities while maintaining ecological health and resilience. At the same time, the sector will continue to provide raw materials to industry at levels enabling competitiveness to be maintained in international markets, with material and non-material well-being increasing domestically.

8. Tourism

ESD in the tourism sector primarily relates to the desirable qualities of tourism resorts, or broader tourism developments, and to the management of tourism impacts. In meeting the requirements of ESD, tourism will provide in the future at least the same range of tourist and related opportunities that are enjoyed by the present generation. An ecologically sustainable tourism sector will be of a type and scale that does not further threaten areas of high conservation value. In certain cases, tourism will be prevented in areas of high conservation value and in areas which remain substantially unaltered by humans.

9. Transport

ESD in the transport sector will require the development of environmentally benign modes of transport that are both economically efficient and socially acceptable. ESD will focus on a reduction in greenhouse gas emissions, the development of an effective urban public transport system, more fuel efficient vehicles, a switch to alternative fuels, and a reduction in air and noise pollution, as well as traffic congestion.



Economics, the Environment and Sustainable Development

John Kerin*

The links between economics and the environment are complex. Whilst economics has a lot to say about how we should conserve the environment, it provides no definite answer to the question of how much we should conserve. This depends on community attitudes and preferences, and will vary over time and between communities.

On the other hand, it is becoming increasingly obvious that the environment is fundamental to a sound economy. For example, in many parts of the world deforestation has given rise, among other things, to desertification and flooding. In Australia, excessive irrigation has contributed to increased salinity levels and reduced the productivity of agricultural land.

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These are just two of many examples. Such problems have resulted very directly in loss of production and reduced living standards.

This relationship between the environment and the economy is central to the concept of sustainable development, which was brought to world attention by the Brundtland Report in 1987. It is also central to the United Nations Conference on Environment and Development to be held in June 1992.

At the domestic level, this recognition that over the longer term a sound economy depends on environmental conservation was the driving force behind the ecologically sustainable development (ESD) process. It is neither ethical nor sensible to develop in ways that compromise the ability of future generations to meet their needs.

On the other hand, it is essential that economic growth take place. In Australia and other industrial countries, strong and sustainable economic growth over the long term

is fundamental to improving equity. It is always the weaker and less skilled members of the community who suffer disproportionately from slowdowns in economic activity.

In developing countries, the need for strong and sustainable economic growth is even more urgent. The very survival of millions of people throughout the developing world, and the ability of their societies to address basic human needs, depends crucially on it. It is only through continued growth that we will be able to generate the resources necessary to conserve the environment.

This gets back to my comments about community attitudes and references. We must respect the views and values of other countries and communities. Cultural and economic imperialism are inconsistent with sustainable development.

In seeking to ensure that development is sustainable, it is necessary to develop approaches that meet a broad range of criteria. These include environmental effectiveness, economic efficiency, equity, feasibility, flexibility, cost and public acceptability. This is particularly important given the serious environmental problems to be addressed at the global level, and their potentially large social and economic impacts.

It is also necessary to develop approaches that are dynamic. Our society, like virtually all other societies, is constantly evolving. Scientific knowledge, technology and social attitudes are never constant. The physical and biological world is also changing. Hence the mechanisms we use to integrate economics and the environment must be dynamic.

MARKET-BASED ECONOMIC INSTRUMENTS

Economics can have a lot to say about developing effective environmental policies. Both economic theory and practical experience suggest that market-based economic approaches offer advantages over command and control regulations in addressing environmental issues.

These advantages are generally seen in terms of efficiency. However, I will argue that market-based approaches can also have benefits in terms of equity and effectiveness, especially when they are compared with command and control instruments. Market-based mechanisms can also admit the necessary dynamism and adjustment that I mentioned earlier.

In some circumstances command and control methods may be the best — or only — approach. However, such methods are relatively inflexible. They generally provide no incentive to achieve better than the prescribed standard. They do not provide an ongoing incentive to find ways to minimise environmental damage. They do not ensure that reductions in environmental damage take place at least cost. And it is often difficult to ensure compliance.

* The Honourable John Kerin, MP, was Minister for Transport & Communications when he delivered this address to the Fourth International Workshop on Governance in the Asia-Pacific Region at Torpy's Restaurant, Braidwood, 11 December 1991. He is now Minister for Trade & Overseas Development, having previously been Minister for Primary Industry (1983–87), Primary Industries & Energy (1987–91) and Treasurer (1991). His article on "Economics and the Environment" was published in *CBPA*, No. 60, February 1990, 11–15.

Market-based economic instruments can often avoid many of these problems. They explicitly recognise that the market often does not take adequate account of environmental factors. They aim to influence behaviour by changing the relative returns on environmentally benign and damaging activities.

In particular, they seek to ensure that there is an economic incentive for individuals and firms to take account of all the environmental costs and benefits of their actions.

In the Australian context, economic instruments have been explicitly recognised as providing a sound framework for integrating economics and the environment. The Treasury paper, "Economic and Regulatory Measures of ESD Strategies", which appeared in the June 1990 edition of the Treasury Round-up, was endorsed by the Government as a guide to the ESD process. This paper outlines a general approach to developing policy for sustainable development and makes a strong case for using market-based economic instruments.

Reflecting this emphasis, many of the ESD reports highlight the need to provide appropriate incentives. This includes ensuring that full social (including environmental) costs are reflected in the pricing of environmental and natural resources.

In some cases economic instruments may also be useful in addressing global environmental problems.

Economic instruments fall into two main categories.

PRICE-BASED MEASURES

First, there are pricing measures such as environmental taxes, charges and subsidies. Their rationale stems from the "polluter pays" and "user pays" principles. They are based on the principle that those using natural resources and causing pollution should bear the full costs, including environmental costs, of their actions.

To meet this objective, they should be targeted as closely as possible to the particular environmental problem that they are seeking to address. If this is done, they can provide a strong incentive to reduce pollution and to use resources as efficiently and productively as possible.

A wide range of environment-related taxes and charges have been applied in Australia and overseas. These include fuel excises, waste and effluent disposal charges and many others. Nevertheless, the OECD has analysed such taxes and charges that have been applied in OECD countries, and has found that they have generally been set at too low a rate to take account of all environmental costs.

It is sometimes argued that pricing measures are ineffective in addressing environmental problems. For instance, it is suggested that consumers soon adjust to higher prices with little or no effect on behaviour over the longer term.

The evidence from the two oil price shocks of the 1970s and early 1980s shows very clearly, however, that prices do matter. Between 1973 and 1985, total energy use per capita in the OECD region fell by 6 per cent, despite the fact that real GDP per capita increased by 21 per cent. After 1985, real energy prices in the OECD region fell, and by 1988

they were about 26 per cent below 1985 levels. Since 1985 improvements in energy efficiency have stagnated. Energy use patterns have clearly been responsive to price signals.

These figures show a strong relationship between higher energy prices and more efficient use of energy. They show that pricing measures can be effective, especially where governments are committed to ensuring that they take into account all environmental costs.

Concerns have also been raised about the equity implications of environmental taxes and charges. It is clear that such taxes, if introduced at high rates (for example, a carbon tax designed to reduce greenhouse gas emissions significantly) would generally be regressive. Low income earners would have a proportionately higher tax burden than higher income earners.

However, before jumping to conclusions about the equity implications of such taxes, it is necessary to consider the effects of alternative policies to conserve the environment.

As a general rule, "command and control" regulations will increase the costs facing producers. These additional costs will be reflected in the prices paid by consumers. For example, regulations to reduce greenhouse gas emissions in industry substantially, and from consumer goods such as motor cars, would inevitably increase prices throughout the economy. Whilst such increases may be hidden and non-transparent, they would generally be just as regressive as a tax on emissions.

This is not to say that we should not impose regulations in these areas. In some cases they may be the only effective means of meeting environmental objectives. However, when deciding between alternative approaches, it is necessary to bear these distributional effects clearly in mind.

In fact, there are at least three good reasons why the adverse equity effects of environmental taxes may be less than those of regulatory approaches.

First, market-based economic instruments can generally achieve environmental objectives at less cost, in terms of disruption to economic growth, than regulatory approaches. As I noted earlier, slowdowns in economic growth will inevitably impact most heavily on those least able to bear the costs.

Second, taxes increase government revenue. This enables the Government to reduce other taxes, or to increase expenditures, in order to offset the adverse distributional effects of the tax without weakening the budget. This is not the case with regulatory approaches.

Third, the distributional impacts of "command and control" regulations are much less transparent than those of economic measures. This makes it much harder to identify and compensate the losers.

Hence the case against environmental taxes and charges on equity grounds is far weaker than it appears at first sight.

QUANTITY-BASED MEASURES

In addition to price-based measures, quantity-based measures such as tradeable permits can often be used to address

environmental concerns. These create rights to use environmental resources, or to emit, up to certain limits and allow these rights to be traded at prices established by buyers and sellers.

Increasing attention is being given to such tradeable permits. In its 1990–91 annual report, the Industry Commission devotes an appendix to the use of tradeable permits in environmental policy. The Treasury has also been studying this area.

In principle, tradeable rights can ensure certainty regarding overall emission or resource use levels whilst concentrating reductions on those who can do so at least cost.

Cost savings mainly arise from the flexibility of tradeable permits.

Where such systems exist, individuals and firms can adjust their level of activity by buying or selling permits. Hence those who can produce most efficiently have an incentive to buy permits to increase their level of production. The more disparate are the costs facing different individuals and firms, the greater are the efficiency gains.

Regulation, by comparison, does not provide a mechanism for allocating the task of reducing environmental damage to those who can do so at least cost.

Tradeable permits also allow individuals and firms to determine the most appropriate ways of meeting a given standard. This is rarely the case for regulation.

They also encourage the development of more environmentally sound technologies, because every reduction in pollution or resource use can be turned into profit through the sale of permits.

Tradeable rights and quotas are most feasible where there is a manageable number of polluters or resource users and it is possible to monitor emissions or use directly.

They have been used in a number of cases in Australia — such as in phasing-out ozone layer depleting substances, management of the southern bluefin tuna fishery, rationing irrigation water in some parts of Australia, and using salt emission rights in the Murray-Darling basin to assist in the control of salinity.

These examples demonstrate that tradeable permits are practical. They have given rise to concrete environmental and economic benefits.

In the case of the southern bluefin tuna fishery, for example, they have ensured sustainability by decreasing the total allowable catch. Bigger, more efficient operators have purchased permits from less efficient operators, leading to an 80 per cent decrease in the number of boats, increasing average catches and decreasing fishing costs. The Australian Bureau of Agricultural & Resource Economics estimates that resource rents in 1986 were more than 75 per cent above what they would have been under alternative management regimes.

Some problems have arisen in implementing tradeable permits. In particular, the total allowable catch was set too high initially, resulting in more rapid adjustment than would

otherwise have been necessary. However, this was a problem with the implementation, rather than with tradeable permits themselves.

In fact, tradeable permits have been an equitable way of facilitating structural adjustment. Those operators who found it economic to leave the fishery were able to receive compensation by selling their permits.

Necessary structural change was therefore encouraged by this automatic compensation. This is not to say that tradeable permits will provide sufficient adjustment assistance in all cases. However, they will always provide some adjustment assistance, and can be supplemented by other measures if necessary.

Because of the success of tradeable permits in the southern bluefin tuna fishery, the Australian Fisheries Service is looking to introduce them in other fisheries.

Nevertheless, there is still limited experience in Australia in the use of tradeable permits to reduce emissions.

Most of the pioneering work with using tradeable permits in this context has taken place in the United States. Tradeable permits were introduced in the 1970s and 1980s for gasoline lead, non-point sources of water pollution, CFCs and air pollution. It is estimated that capital cost savings resulting from the air pollution program alone were in excess of US\$10 billion, with additional recurrent savings.

Tradeable permits have recently received even greater prominence following amendments to the *Clean Air Act* in 1990 which introduce a system of tradeable emission permits to control acid rain. This is widely seen as an important test-case for the feasibility of broad-based emissions trading.

The system is expected to give rise to major environmental benefits. It imposes a permanent ceiling in emissions, to apply from the year 2000, at least 50 per cent of 1980 levels. The combination of this substantial reduction in emissions and the cost-effectiveness of the response was essential in forging the alliance between environmentalists and the Bush Administration necessary for effective action on acid rain.

This latter point is also relevant in the Australian context. The flexibility implied by tradeable permits was fundamental in getting State governments to agree to a strategy to reduce land and river salinity in the Murray-Darling Basin.

Hence we are developing considerable knowledge about the use of tradeable permits. We need to build on this knowledge and take further advantage of their strengths in addressing practical environmental problems.

CONSENSUS AND CONFLICT RESOLUTION

I would now like to digress to talk about how we as a community make decisions on the environment. As I mentioned earlier, the extent to which we should conserve the environment will depend ultimately on consumer attitudes and preferences.

Because the ultimate decisions depend so heavily on value judgments, it is doubly important that the procedures for reaching them should be transparent. Further, they must provide scope for public involvement and for public scrutiny of the information and process.

This is especially true in Australia where all three levels of government are involved in environmental policy.

The ESD process has been a very useful learning experience. It has provided the opportunity for community groups, business organisations and trade unions to play a very active role in developing policy. It has also led to a greater understanding of the positions of other parties and the need for compromise, although not to the extent that I would have hoped.

The Resource Assessment Commission and the Industry Commission inquiry processes also provide for extensive public consultation.

Nevertheless, we still have a long way to go. We need to develop mechanisms that enable and facilitate balanced decisions, and which engender public confidence in both the processes and outcomes. They must cater for different and competing value systems.

This is true regardless of whether we use economic instruments or regulatory approaches, or, more precisely, regardless of the combination of these two approaches that we use. Market-based instruments cannot remove the subjective element from decision-making. There will always be debate about the valuation of particular environmental attributes of natural resources.

However, a key advantage of market-based mechanisms is that they make the costs and benefits of the various options — and, in many cases, who will bear those costs and enjoy the benefits — much more explicit. By ensuring that these valuations are explicit rather than implicit, such instruments can make decision-making more transparent and facilitate public participation.

Hence we need better methods to value our resources, particularly in attempting to value their environmental and social attributes. The RAC's work on contingent valuation is an attempt to move in this direction. The Industry Commission also has an important role here — whilst I have not always agreed with all of their conclusions, they have the capacity to consider environmental questions through a strong analytical framework.

We also need to develop better indicators. In the same way that we have economic indicators, we need to develop a range of quantitative and qualitative measures that indicate the health of our environment. And we need to be able to predict the environmental impacts of our actions better and with greater confidence.

Hence we need better information. But we cannot use this lack of information as an excuse for not acting now when we know or have strong evidence that we are facing serious environmental problems.

This is especially true for global environmental problems. We have a unique opportunity in Rio in 1992 at UNCED

to address these problems, or at the very least to set in concrete processes to ensure effective global action.

Effective global action will depend on a number of factors. Not least of these is the question of financial resources for developing countries. Australia recognises the importance of adequate and additional funds for developing countries to ensure their participation and help them meet their commitments arising from UNCED.

**... the extent to which we should
conserve the environment will depend
ultimately on consumer attitudes and
preferences.**

**Because the ultimate decisions depend so
heavily on value judgments, it is doubly
important that the procedures for
reaching them should be transparent.
Further, they must provide scope for
public involvement and for public
scrutiny of the information and process.**

However, financial assistance of itself cannot ensure sustainable development. The policies adopted by both developing and industrial countries, for instance the removal of policy distortions which impact adversely on sustainable development, will be crucial. Where financial assistance is provided, it should be focused on the implementation of policies for sustainable development.

I would now like to consider the scope for using market-based economic instruments to address some of the issues that will be considered at UNCED.

GREENHOUSE GAS EMISSIONS

In 1990 the Intergovernmental Panel on Climate Change (IPCC) noted in its report on response strategies that economic instruments offer the possibility of achieving environmental improvements at lower cost than regulatory instruments.

A number of countries in northern Europe have adopted or are adopting carbon taxes. Sweden and Norway have already introduced substantial taxes with the specific aim of curbing carbon dioxide emissions from energy use. Finland has imposed more moderate tax rates. Denmark and Switzerland are considering implementing carbon taxes, and the European Community is examining a mixed carbon and energy tax.

While experience with carbon taxes is growing, there are a number of outstanding issues.

Some of these relate to their environmental effectiveness. Ideally, under a greenhouse emissions tax all those who cause climate change would pay the same per unit of climate change they cause. To do this the tax would need to be comprehensive. This would involve including non-energy sources of carbon dioxide, as well as greenhouse gases other than carbon dioxide.

Whilst this is not a simple matter, it is an important one. Focusing on one gas risks perverse effects, such as increasing emissions of other gases or sources. It is therefore encouraging that the IPCC is attempting to measure the carbon dioxide equivalence of different gases. It is important that work in this area continue.

It is also unclear how effective carbon taxes can be in meeting a quantitative target for emission reductions. As I noted before, past experience shows that increased energy prices are very effective in reducing energy consumption.

However, it is impossible to predict exactly how responsive energy users will be to changed prices, especially over different time horizons. Responsiveness to price changes can also be altered by other measures such as removing barriers that prevent efficient energy use. If we are to meet an emissions target, taxes would have to be set iteratively to avoid undershooting or overshooting.

There has also been concern about the equity implications of carbon taxes. This is clearly a very valid concern. However, as I noted earlier, it is not at all clear that regulatory approaches to reducing greenhouse gas emissions would have any advantages in terms of equity considerations.

Nevertheless, it would be very difficult to implement a carbon tax internationally. Any such tax would give rise to numerous issues, including whether it would be collected by an international agency or by national governments, and whether it would be levied at the production or consumption stage.

It has been suggested that carbon taxes, therefore, seem more promising as a domestic policy tool which could be used by individual countries to help them meet any obligations arising under the Convention.

In the Australian context, a number of the ESD working groups recommended further study into the merits and impacts of a carbon tax. One particularly important consideration would be the effect on Australia's competitiveness.

Australia's interim greenhouse target to stabilise greenhouse gas emissions at 1988 levels by the year 2000 and reduce them by 20 per cent by 2005 is subject to the caveat that we will not proceed with measures which have net adverse economic impacts nationally or on Australia's trade competitiveness in the absence of similar action by major greenhouse gas producing countries.

There has also been some discussion of tradeable emission permits in the context of reducing greenhouse gas emissions. The IPCC, for example, identified tradeable emission permits as potentially cost-effective instruments for achieving a defined target for emission reductions.

A system of tradeable emission permits could be a particularly useful component of an international package to reduce greenhouse gas emissions.

The cost of reducing emissions varies markedly between countries. A system of tradeable emission permits would encourage those countries that could reduce emissions at least cost to do so.

The benefits of this could be very substantial. For instance, initial estimates by the OECD suggest that trading reduces the average welfare cost of achieving the specified emissions targets to half what it would otherwise be.

Because of the scope for trade in permits, those countries reducing emissions would not necessarily bear the cost for financing such reductions. This would enhance the scope for ensuring that the international package was effective from an environmental perspective, economically efficient and equitable between countries.

For instance, depending on the initial allocation of permits, low-emitting developing countries may be able both to increase their emissions and sell or lease excess permits to higher-emitting countries. This would both assist development in such countries and provide a strong incentive for them to join the agreement.

Further, such a system would allow countries considerable flexibility in their responses. Adopting a system of tradeable emission permits internationally would not require individual countries to implement any such system at the domestic level. They could, for instance, meet their obligations at the domestic level through polluter-pays taxes, tradeable emission permits, regulatory controls or a combination of such approaches.

BIOLOGICAL DIVERSITY

Economic incentives also have a crucial role to play in conserving biodiversity.

Given development needs it is clearly not possible to exclude sufficient land from commercial use to conserve biodiversity adequately. This is true in the case of Australia.

It is even more true for developing countries with rapidly increasing populations and low standards of living. Yet it is in these countries where conservation of biodiversity is most important. More than half of the world's biodiversity is located in the tropics, and it is there that biodiversity is most threatened.

It is therefore essential to develop mechanisms to conserve biodiversity in ways that are consistent with commercial use. As noted in the Brundtland Report, a practical approach is to develop natural habitat areas for multiple use. It is necessary to encourage use of biodiversity-rich areas in ways that do not threaten the biodiversity.

This in turn depends on establishing effective incentives to conserve biodiversity by ensuring that gene pools, species, ecosystems, habitats and similar resources are appropriately valued and priced; in other words, to ensure that those using biological resources bear the full costs of such use.

At present a great deal of biodiversity is underpriced. One reason for this is that in many cases it is characterised by the absence of clear property or use rights. Open access often means that such common resources are overused.

In such cases, establishing effective property and use rights may assist in conserving biodiversity. This may take a variety of forms. One approach, which I have already discussed, may be to allocate tradeable permits to ensure that resources are managed sustainably.

There are also numerous examples of underpricing of biological resources as a result of inappropriate pricing policies or other policy failures or distortions.

For instance, World Bank and other studies have found that in many countries, policy distortions such as the underpricing of forest resources, taxation concessions for agricultural income and systems requiring logging for proof of land occupancy have provided strong incentives for deforestation.

The use of economic instruments to conserve biodiversity must be considered on a case-by-case basis. In the context of the Convention on Biological Diversity, it would be impossible, and undesirable, to prescribe specific measures which should be taken by governments.

Nevertheless, Australia believes that it is essential that the Convention include an obligation for countries at least to examine the impact of existing institutions, policy frameworks and systems of rights and incentives, and to take these into account when determining their individual policy responses. Australia has been active in advocating such a clause in the Intergovernmental Negotiating Committee for the Convention.

CONCLUSION

In conclusion, I hope that I have conveyed the message that economics and the environment are inextricably linked. It is not possible to develop sound economic policies if we ignore the environment. Conversely, it is not possible to develop effective environmental policies if we ignore economics and the economy. These linkages provide the rationale for both UNCED and for ESD in Australia.

Market-based economic instruments offer considerable advantages in integrating the environment into economic

policy, and in integrating economics into environmental policy. This is true both for Australia and internationally. If we are to achieve effective outcomes at UNCED, it is essential that we bear these advantages firmly in mind.

Market-based economic instruments offer considerable advantages in integrating the environment into economic policy, and in integrating economics into environmental policy. This is true both for Australia and internationally . . . On the other hand, such market-based approaches must comprehend the essential role for value judgments in environmental policy. They must be augmented with processes to ensure transparency and public participation at all levels. And they must be used in a way that is socially and culturally sensitive.

On the other hand, such market-based approaches must comprehend the essential role for value judgments in environmental policy. They must be augmented with processes to ensure transparency and public participation at all levels. And they must be used in a way that is socially and culturally sensitive.

This is possibly our greatest challenge in developing effective responses to the dilemmas inherent in sustainable development, both domestically and internationally.



Strategies for Sustainable Development in Papua New Guinea

John D. Waiko & Wari Iamo*

The forest is a unique organism of unlimited kindness and benevolence that makes no demands for it sustains and extends generously the products of its life activity; it affords protection to all beings, offering shade even to the axeman that destroys it.

— Buddha

Papua New Guinea's land mass is estimated at 46 million hectares (ha). Although 40 million ha of this land mass is forested and has commercial value, approximately 21 million ha is inaccessible due to rugged terrain and 10.5 million ha is accessible but unproductive. This leaves roughly 8.5 million ha that is accessible, productive and suitable for development. (K.J. White 1977:398).

This paper begins with an outline of the legacy of the colonial policy on export-led growth prior to the country's independence. It then goes on to argue that the Independent State of Papua New Guinea did not conduct a substantial review between 1975 and 1985 to establish its own economic policy and, as a result, sacrificed the environment at the altar of development. This resulted in the abuse and misuse of forest resources by foreign corporations and individual Papua New Guineans. The third part of the paper concentrates on sustainable development strategies undertaken since 1989.

THE COLONIAL LEGACY

Before independence in 1975 the policy of the Australian colonial administration concerning exploitation of forest resources was to recognise traditional ownership of the land on which the timber stood. Accordingly, forests were extracted, mainly for export purposes, through three routes:

- landowners sold the timber rights to the colonial authority, which then arranged or collaborated with foreign investors or transnational corporations to bring about development;
- landowners arranged a direct sale to industry; or
- landowners developed their own timber industry.

The Fourth National Goal

Papua New Guinea's Constitution has a preamble with five National Goals and Directive Principles. The fourth goal covers natural resources, including the forest and their uses, as well as environment:

We declare our fourth goal to be for Papua New Guinea's natural resources and environment to be conserved and used for the collective benefit of us all, and be replen-

ished for the benefit of future generation. We accordingly call for:

- (1) wise use to be made of our natural resources and the environment in and on the land or seabed, in the sea, under the land, and in the air, in the interest of our development and in trust for future generation; and
- (2) the conservation and replenishment, for the benefit of ourselves and posterity, of the environment and its sacred, scenic and historical qualities; and
- (3) all necessary steps to be taken to give adequate protection to our valued birds, animals, fish, insects, plants and trees.

Responsibility for achieving the aims and ideals of the Fourth National Goal concerning forest resources is vested in the Department of Forestry.¹ By the time Papua New Guinea achieved self-government at the end of 1973, the Forest Department had investigated and identified a considerable area of valuable resources suitable for development.

Table 1 indicates the size of the forest resource that the administration used to embark upon a program of attracting foreign capital and technology for logging and export. The colonial legacy was, in fact, perpetuated by the Papua New Guinea government. The effects of this policy were depletion of the forest resources and environmental and social disruption.

The administration adopted an exploitative timber industry program which concentrated on rapid growth of forest production and exports. The resources were advertised in the world-wide market to attract foreign investors, and forest concessions were released for timber export and other products. In this way, huge areas such as Gogol in Madang, Open Bay on the north coast of New Britain, the Kaut area of New Ireland, and the Mt Giluwe area of Southern Highlands were released for exploitation by 1974. During

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1 In 1979 the *Forestry Industries Council Act* was passed to promote the interests of the forest products industry. In addition, forestry activities are guided by various legislations including the *Forest Act*, Chapter 216; *Forestry (Private Dealings) Act*, Chapter 217; and the *Environmental Act*.

the following year negotiations took place for the release of timber rights in new areas like Kapiura near Hoskins (83,000 ha) and Kapuluk (181,000 ha) in West New Britain, Sagarai/Gadaisu (145,000 ha) in Milne Bay, Vanimo (260,000 ha) in the West Sepik, Kumusi (70,000 ha) in the Northern District, and Gogol area (67,000 ha) near Madang.

At this time, the administration issued Resource Management Guidelines in forest development, forest management and environmental considerations, as well as operational guidelines for clear felling rather than select logging. These provisions included the following considerations:

manipulation of forest resources should be based on ecological analyses and principles and the use of appropriate management technologies that result in the sustained yield from the resource, and which will cause minimum, adverse effect on the environment and degradation of the ecosystem; timber or other forest product management should aim to maintain the potential for maximum sustained yields; critical areas such as catchment areas, riverina, and estuary zones, slopes and any areas subject to accelerated erosion be given special consideration; areas too steep or unsuitable for timber extraction should remain a protection forest and be managed for soil protection, water regulation and other values; appropriate areas be set aside for scientific, aesthetic and recreational purposes; and where possible multiple purpose use be optimised.

(White 1977:405)

In April 1975, almost five months before Papua New Guinea achieved its sovereignty, it issued further specific minimum terms and conditions to foreign companies and individuals who intended to be involved in the integrated timber industry. These dealt with equity participation of Papua New Guineans; training and localisation; guidelines for the operation of the timber industry; reafforestation;

downstream processing; and compliance with government regulations and laws.

In 1979 a Revised Forest Policy White Paper was adopted by the National Executive Council with the following objectives:

- (1) increasing revenue generation;
- (2) creating more employment opportunities;
- (3) developing rural areas;
- (4) increasing Papua New Guinean participation in development;
- (5) resource replacement and conservation;
- (6) forestry training and education for Papua New Guineans;
- (7) management of financial expenditures and revenues; and
- (8) fostering improved relationships with provincial authorities (Government of Papua New Guinea 1979:92).

Within this broad policy framework the national government aimed to create an economic environment conducive to social and political stability in the country. In practice, however, the government's rhetoric was at variance with the reality.

FROM 1975–1985: EFFECTS OF THE LOGGING PROJECTS

It is useful to concentrate discussion of the impacts of these logging operations by looking at specific examples. The Gogol area was the site of one of the first logging operations in 1973 and there remain in the area continuing woodchipping operations. As such, it represents a process of continuing environmental and social problems. The Gogol concession was released to the giant Japanese New Guinea Company Limited, or JANT, which is a branch of the transnational corporation Hoshu Paper, which in turn is a subsidiary of Mitsui, the Japanese corporation. When JANT acquired the concession it agreed to invest about K20 million to log the area within 15 to 20 years. With the colonial era coming to an end in Papua New Guinea, many other multi-national corporations rushed to establish a foothold in the country, and the Gogol area, and its people, were further exploited by foreign interests.

In contrast, the Binandere people of Oro Province resisted the pressure and saved their forest. Their resistance was articulated by Japhet Jigede, one of the strongest opponents and a “big man” of the Binandere. He imposed a price over his forest resources in this manner:

I did not ask members of the House of Assembly to invite a whitemen's company to destroy my land. I told the politicians to tell the Company that I only wanted a road outlet for selling cash crops; the trees near the road can be cut for the Company. Now I know that it intends to clear cut my forest. Trees do not grow in the air, but

Table 1: FOREST RESOURCES OF PAPUA NEW GUINEA, 1973

Area	Merchantable area (1,000 ha)	Volume in million cu. m.	
		15–48 cm diameter above buttress	48 + cm diameter above buttress
Abau	87	3.5	4.5
Aroa	45	1.2	1.2
Sagarai-Gadaisu	58	4.4	3.4
Musa	80	4.7	2.4
Kumusi	28	2.4	2.4
Ioma	182	11.8	10.5
Mai-Ama	24	2.8	2.9
Open Bay	103	4.6	7.0
Ania-Kapiura	110	4.7	5.7
Kandrian	121	7.1	8.3
Arawe	157	8.3	8.7
Kapuluk	103	4.7	4.7
Melkoi	40	2.4	1.6
Nakanai	46	2.4	5.0
Kaut	10	0.5	0.5
Torokina	13	1.0	1.2
Vanimo	239	7.1	10.6
Middle Ramu	131	5.7	5.7
Giluwe	21	NA	1.9
Jimi	101	NA	4.7
TOTAL	1699	79.3	92.9

Source: K.J. White, table 39.1, p. 398.

on the land. The forest is a source for my medicines, my wealth and my everything. Our ancestors own the place and we have the hunting rights. Not only will the ancestors curse for accepting a few dollars in exchange for the irreplaceable resource, but the younger generation will condemn me for my decision to invite the Company. Ancestors have lived here, I am living on the same land and I want the future generation to have good gardening land. I do not want the Company.

If it ignores my words, say to it that Jigede has said so, and if it ignores again I will impose this condition: that the Company must pay me, my wife and each member of my family and the extended family a sum of \$1000 every day forever. Every Monday, Tuesday, Wednesday, Thursday, Friday and Saturday. Not on Sunday because it is God's day of rest. My children and their children's children must get this sum daily in order to live. These sums added together are nowhere near the price for my land and forest. If the Company is mean and does not want to give this token gesture for destroying my livelihood, not only mine and my family's but also that of every single person in the village, warn the Company to forget about my trees on the land. (Waiko 1977:416)

By the end of the 1970s it became evident that the export-led timber industry had done irreparable damage to the environment and the social life of the community throughout the country. The national government had placed too much emphasis on the need to generate additional revenue for the state and had established institutions such as the Forest Industry Council which promoted and exploited forest resources.

With such a strong opposition from the landowners among the Binandere, the proposals from the US-based multinational corporation, Parsons and Whitmore, were rejected in August 1974.

By the end of the 1970s it became evident that the export-led timber industry had done irreparable damage to the environment and the social life of the community throughout the country. The national government had placed too much emphasis on the need to generate additional revenue for the state and had established institutions such as the Forest Industry Council which promoted and exploited forest resources.

But this emphasis did not end with the decade. In 1982 the impact of the international economic recession forced the Papua New Guinea government further to increase the volume of log exports in order to generate revenue. Five years later it was blatantly clear that the net result of logging operations was disastrous. There was widespread misuse of forest resources, environmental legislation and regulations were abused and ignored, and corruption was rife.

In 1987, the national government appointed a Commission of Inquiry into Aspects of the Forest Industries under Justice Thomas Barnett. The thrust of the terms of reference of the Commission was to investigate the operations of the Forestry Industry Council with particular attention to its marketing arrangements. Barnett concluded that since 1975 the national government lacked a formal official forest policy and in its absence a *de facto* policy arose.

There is no clear written statement of policy in any single document and a study of all available documents, in an endeavour to piece together a sort of composite or aggregate policy, has not produced a satisfactory result. At this stage it is fair to say that there is intellectual imprecision and confusion amongst officials and the industry regarding the promulgated forestry policy. (Barnett 1987:17-18)

It was not until 1985 that the national government engaged M. Gane of the Food and Agriculture Organisation to prepare The Report on Forest Policy and a "Draft Forest Policy Statement" was issued in June of that year. Gane proposed changes to forestry administration, legislation, and reforestation. He suggested the following policy objectives:

the rationalisation and improvement in forestry administration; the management of the forest resources on a sustained yield basis; the generation of employment through a major forest resource replacement programme; increased revenue generation through improved inspection and a review of charges; the rationalisation and consolidation of the timber industry; a cautious and highly selective approach to new timber projects.

In addition, Gane put forward six imperatives as a yardstick for measuring policy:

- (1) the protection of timber resources, the ecosystem, and the environment;
- (2) the use of sustained yield management to secure a continuing flow of benefits;
- (3) the satisfaction of the people's basic needs from the forests, through the provision of fuel, water, shelter, recreation etc.;
- (4) a type of development which tapped the potential for creating revenue, while avoiding socially unacceptable side-effects, and re-invested to increase the productivity of the resource;
- (5) an emphasis on decentralisation by spreading decision-making and workloads more evenly through the administration system, by involving staff at national, provincial and local levels, other departments and organisations, the industry, and customary owners;
- (6) an equitable distribution of income and benefits from the forests by sharing the benefits between national and provincial governments, and the customary owners. (Brunton 1988:55)

Gane identified what he considered the four main obstacles to achievement of these policy objectives: inadequate infor-

mation and planning; an imbalance between felling and tree replacement; inadequate organisation and participation; and lack of awareness about forestry, particularly amongst customary landowners. As he saw it:

The type of forestry organisation in place at present constrained effective administration, as did the shortage and unequal distribution of trained forestry personnel. There was a need to streamline administration, particularly at the provincial level. The benefits of forestry were not balanced with obligations: landowners took profits and royalties but were not bound to replant, or to provide land for replanting. (Brunton 1988:56)

Gane also pointed out some further constraints that would hamper achievement of the objectives he advocated. He noted that there was virtually no money in the forestry system.

The basic principle of the renewal of the resources being the first charge on income, was being ignored. Royalties went to provincial governments and to landowners, with very little, if anything, going back to reafforestation. The under-collection of royalties and log export duty led to substantial amounts of revenue being lost. (Brunton 1988:58)

He also recognised that, given the limited availability of the state-owned land, it was difficult to persuade the village people to allow new customary land to be committed to reafforestation.

Gane felt that these obstacles could be overcome through pursuit of the following "strategic aims":

that the rate at which timber was cut should be consistent with the principle of sustained yield; cutting was to be planned; no plan no permit. That the rate of reforestation should be related to the rate of cutting, so that a balance could be achieved between removals and replacement within a 10 year period. That forestry development projects should be based on joint participation to overcome inadequacies in organisation which would be streamlined. That a forestry awareness programme be initiated by strengthening extension services. (Brunton 1988:57)

In 1988, the Forestry Industry Council, through the Papua New Guinea National Research Institute, engaged a consultant who prepared "A Final Draft Report: Critique of the Drafting Instructions for the Review of the Forest Legislation and Regulation in 1988". Brian Brunton summarised the thrust of this report. He noted that beyond the de facto policy:

There was no sustainable resource management, no national control over provincial developments, no decentralisation policy, and no emphasis on local processing. This was because . . . the real policy was a maximisation of revenue through log exports; foreign capital was encouraged to dominate; the expansion of the industry was encouraged in spite of the limited institutional ability to administer the resource; the policy was to allow serious breaches of the law to go unsanctioned, to tolerate transfer pricing and outdated legislation. (Brunton 1988:69)

One of the consultant's recommendations to the Forestry Industry Council was to formulate a forest policy and then build institutional structures consistent with the constitutional precepts as outlined in the National Goals and Directive Principles. The policy should take into account the basic principles that include:

the demands of sustained yield management; the demands on forest lands for agriculture and other non forest purposes; the need to conserve and protect forest resources; the need for resources, financial, training and research necessary for successful forest management. (Wyatt-Smith 1987:4)

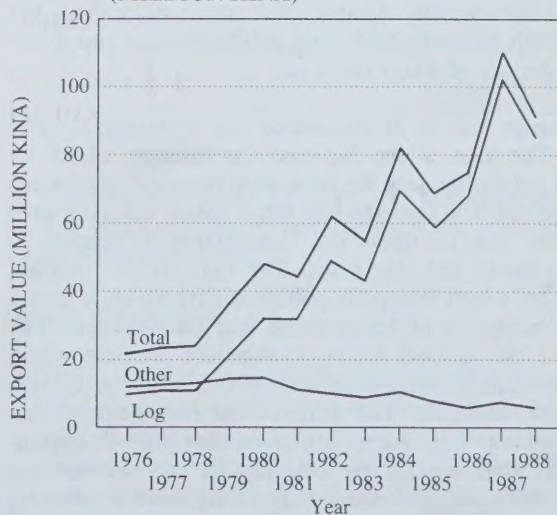
Sustainable development has to do with sustained yield management in the tropical moist forest. The process of this kind of managing the forest is much more complex than merely replacing trees that have been cut down. Wyatt-Smith defines sustained yield management as follows:

To exploit forest in a way that provides regular yield of forest production without destroying or radically altering the composition and structure of natural forest as a whole. Thus it is more than maintaining the rate of production at the low level of natural forest which merely replenishes natural mortality. It is used in the sense of enhanced production through silvicultural practices while conserving the protective role of the vegetation and the genetic pool of species other than those regarded as weed species and which compete with and suppress favoured timber trees. (Wyatt-Smith 1987:19)

The fourth National Goal of the Constitution expresses so clearly the requirement for sustained yield management and sustainable development of the forest resources and the protection of the environment. But, as has been described above, between 1975 and 1988 massive volumes of Papua New Guinea's forest resources have been exploited. Figure 1 shows that export earnings from forest products rose from K22 million in 1976 to K89 million in 1988, at an average growth rate of 12.4 percent. In 1987 export earnings reached their peak at K109.10 million.

The effects of this development on the environment have been destructive. Successive national governments did not

Figure 1: EXPORT OF FOREST PRODUCTS (MILLION KINA)



Source: Towards a National Plan by Fernando & T. Nen. 1990, 3.

commit to the renewal of forests by the use of sustained yield management.

However, world-wide movements against massive exploitation of natural resources, in particular concern about tropical rain forests, have brought about certain changes and direction in the formulation of Papua New Guinea's national policy.

In recent years Papua New Guinea has recognised the importance of sustained yield management and moved to formulate policy in the areas of: establishing and strengthening monitoring systems in order to check the activities of the international corporations' involvement in the forest sector; integrating environmental considerations in the exploitation of forest resources; recognising the need to increase exports, diversify export products and develop new markets; directing landowner participation in forestry; increasing attention on reforestation; and improving forest management capabilities of national staff, strengthening research and establishing a forest database.

SUSTAINABLE DEVELOPMENT SINCE 1989

Forest Planning — A National Forest Plan

It is imperative that long-term forest planning systems are put into place to give directions to the patterns of development. Decisions that are taken now in forest development will have a long-term effect on forests and rural communities. Government must recognise the limits of development to ensure perpetuity both environmentally, socially, and developmentally. There is, therefore, a need for long-term planning systems that can look at the effects of forest development through into the next generation.

Accordingly, the government directed the Forestry Department to prepare a National Forest Plan to provide a clear guideline for the forestry sector. The Department collected basic socio-economic data about forest land and other related information, and subjected these data to a thorough review and discussion by forestry experts from both national and provincial authorities.

Thus, after 16 years of political independence during which Papua New Guinea has recorded a poor record in reforestation, environmental damage and social disruption, the government has embarked upon policy changes and direction in the use of forest resources.

This change has as its foundation the following six elements: The first is the National Constitution which, as pointed out earlier, sets the aims, directions and aspirations of the people. The second is the forest policy and associated legislation that interprets the Constitution in relation to forestry needs and directions. The third is the national forest plan which interprets policy and translates it into a broad description of forest usage and classification. The fourth is the national forest development program which takes production forest development needs and sets out a work-flow sequence. The fifth is the management plan which governs the system and constrains individual projects. The sixth are the periodic reports and reviews that monitor the process to ensure that management is adhering to plan requirements.

In 1990, the Forests Department declared its Mission was "to ensure that the forest resources of the country are used and replenished for the collective benefits of all Papua New Guineans now and for future generations", and issued the Forestry Subsector in the Medium Term Development Strategy. This is a Five Year Plan in which the government has undertaken new policy initiatives in the forestry subsector to complement general policies outlined earlier based on the principle of sustained yield management.

The Department believes that it can assist the government in alleviating law and order and socio-economic problems by opening up new areas for agricultural development; building roads, bridges, urban centres, health centres, schools, public utilities and social amenities; providing employment opportunities; generating revenue for the government and individuals; bringing foreign exchange earnings; and providing education and training to the national workforce.

Six imperatives have been identified as the foundation for balanced policy formulation and implementation strategies in the forestry sector. Disregarding any of them will have potentially serious political, social, economic, or environmental consequences.

Protection	safeguarding soils, water catchments, ecosystems, fauna and flora, sacred and historical sites, national monuments and water resources.
Sustenance	wise management of the forests to provide perpetual flow of all kinds of benefits for future generations.
Basic Needs	providing fuel, water, shelter, clothing, food and spiritual renewal from the forests.
Development	managing the forest to yield an increasing supply of forest products, incomes, levies, premiums, tax revenue, foreign exchange, employment, infrastructure and other benefits; controlling the pace and direction of change to avoid socially unacceptable side effects; encouraging the participation of Papua New Guineans in the forest industry to reduce dependence on imported goods and services; investing to increase the productivity of the forest resources in the future.
Decentralisation	spreading powers of decision, workload and effort widely through the administration system; defining and delegating appropriate functions in the control and monitoring of future development of forest resources and landowner companies.
Distribution	sharing the income and other benefits from the forests equitably between the national government, provincial government, local groups and customary owners.

The National Forest Policy, although still in its review stage, suggests that the following policies and strategies

will be pursued in the areas of forest management, forest industry, forest research, and training and education.

Forest Management

Policy

- The guiding principle for all forest development shall be sustained yield management. The productivity of forest areas which are harvested must be maintained and, where possible, increased.
- The responsibility to ensure that the country's forest resources are replaced and managed rests with the government but with the understanding that those involved in the utilisation of the resource must contribute to the cost of its replacement.
- Perpetuation of the country's high value indigenous species will play a key part in the management program. Resource replacement and regeneration will be pursued by adopting a careful balance between management options, including intensive plantation forestry and natural regeneration management.
- Under-utilised land resources (for example, grasslands and swamps) will be put to productive use by way of a program of afforestation and/or other development.
- Increased emphasis will be given to the management of minor forest products by developing proper guidelines for harvesting, processing, utilisation and regeneration of those products.
- The development of natural forest resources will adopt a multiple use management approach.
- Forest development priorities will be guided by the need to share the benefits of development throughout the country.
- Multiple land use planning must form the basis for forestry sector planning at provincial and national levels.
- All future agreements relating to commercial use of forest resources will require land use plans to set the framework for follow-up land use once areas have been harvested. Such plans will need the endorsement and support of the national and relevant provincial government and the owners of the forest.
- While the main emphasis of development will focus on medium-and large-scale projects, increased attention will be paid to small-scale forest based development, to promote direct involvement and participation by customary forest owners.

Strategies

National Forest Plan

- A National Forest Plan is to be prepared to set out in detail forestry development priorities and constraints by province. This plan is to be prepared jointly by the national and provincial governments.

Resource Inventory

Detailed knowledge of the resource is a prerequisite for national forest planning. In this respect:

- A data collection program is to be coordinated by the Department of Forests to assess merchantable timber volumes of resource units suitable for Timber Rights Purchase action.
- Current and new permit holders will be responsible for a program of post-logging assessments over all areas which they log.

Resource Acquisition

- To achieve policy objectives it is imperative that extensive areas of land be placed under proper forest management. The main mechanism through which the state may acquire the right to harvest forest products from customary-owned land will continue to be by way of Timber Rights Purchase agreements. Proposed legislation will alter the concept of state acquisition to one of state management.
- The scope of the new management agreements will be expanded to allow the state the right to grow, plant, and manage subsequent forest crops on customary-owned land.
- The extent and location of the forest management areas shall be determined by taking into account the aspirations and needs of landowners, potential for land uses other than forestry, the nature of the resource, and market conditions.
- Landowner participation will be sought in the development of the proposed management areas.
- In addition to the proposed management areas, encouragement and assistance will be provided to local authorities and landowners for management and establishment of their own forests.

National Forests

- Vacant government land considered suitable for sustained management with due regard as to size, physical and biological nature, and economic potential, shall be set aside for forestry purposes, provided such set asides conform with overall government objectives and land use priorities.
- Government land so set aside, and existing major forest plantation projects on government land, shall be known as National Forests.

Forest Plantations

- Forest plantation activity is eminently suited to providing employment in rural areas, and forest plantations have the potential to reduce the pressure on exploiting natural resources. Accordingly, new forest plantation activity is to be expanded to a rate of not less than 10 percent of the area of natural forest commercially cut annually.

- Initial emphasis will be on expanding existing plantations to levels where they can sustain anticipated timber requirements.
- This program is to include afforestation of under-utilised land resources, with emphasis on those areas of the country with a shortage of timber for domestic consumption.
- The forest plantation program will form part of the National Forest Plan.

Natural Forest Management

- While increasing the rate of planting, the balance of areas harvested and not to be converted to other land use are to be placed under natural forest management at various levels of intensity, concentrating on areas dedicated for such purposes as part of Timber Rights Purchase agreements, or what is to be known as the Forest Management Agreements.
- As natural forest management is the only rational option to regenerate a range of the more valuable indigenous species for which management regimes are not well developed, efforts are to be concentrated on developing appropriate guidelines, backed up by an intensive program of research.
- In the eyes of the landowner, natural forest management might not constitute what is normally perceived as development. As such, the concept of this type of management needs to be actively promoted and its implementation demonstrated to win the support of the land owners.
- Priorities for natural forest management for timber production will be guided by the forest composition and regenerative capacity of high value species.

Forest Development Fund

- Intensive forest management needs the establishment of a Forest Development Fund. The main purpose of this fund is to finance the establishment, development and protection of forest plantations and natural forest management on state land, land held under lease by the state, and land under Timber Right Purchase Agreements or Forest Management Agreements.
- Consistent with the principle that those who are involved in the removal of natural forest resources must contribute to the cost of replacing it, the Forest Development Fund is to be made up of revenue collected as a Forest Development Levy, which will be payable on all timber harvested.
- This levy will be introduced at a rate of two kina per cubic meter of timber exported as logs, and will be subject to review to reflect the cost of forest replacement.
- The fund will be established as a trust account, to be administered by the Department of Forests.

Forest Working Plans

- Timber and licence pro forma conditions will be reviewed as part of the forest policy.
- Increased emphasis will be given to improvements in and tighter control of adherence to 5-year Forest Working Plans. A standard format, which, among other aspects, will define procedures for selective logging and road alignment and construction, will be circulated to all existing and new operators. These plans and procedures will constitute the tool by which to measure the permit or licence holder's commitment to forest management and care of the environment.
- Intensive operational surveys before and after harvesting each logging coupe will be a requirement placed on the operator. These surveys are a prerequisite for future planning.
- New agreements and permits will require the holder to establish and operate a planning unit with staff qualified in forest management.

Community Forestry

- Through provincial extension services, establishment of woodlots of private consumption or commercial use and agroforestry is to be actively promoted. The Department of Forests is to play an active role by providing information, coordinating staff training and through liaison with other relevant agencies.

Forest Protection and Conservation of the Environment

- It is a collective responsibility for all those involved in commercial forestry activity to minimise adverse impacts on the environment. All policies relevant to forestry, forest industry, conservation of the environment, wildlife management etc., must be closely coordinated with all agencies administering and implementing the various policies.
- The National Forest Plan and land use plans for individual areas are to identify and classify areas not only based on commercial potential for timber production and other produce, but also on ecological values such as water catchment protection, soil protection, flora and fauna.
- The policy declares its commitment to prevent destruction of natural forests and forest plantations due to wild fire. The key to better fire protection is through promoting awareness among the general public of the deleterious effects of fires on the environment. Close cooperation between the Department of Forests and the Department of Education is aimed at addressing the role of forests and forestry in general.

Forest industry

Policy

To realise the potential of the forest industry to become and remain one of the mainstays of the economy, its development into a viable and profitable sector is a corner-

stone of this policy. To this effect, the following policies will be pursued.

- On-shore processing will be a major prerequisite for all future forest development in the country.
- It shall be a priority to satisfy domestic demand and to replace import of raw and semi-processed wood materials into Papua New Guinea by products produced locally.
- Recognising the importance of a sound investment climate for the timber industry, development requirements in investment projects must be realistic and commensurate with the scope of the project.
- Processing and marketing capabilities of industry are to be linked to the capacity of the resources to sustain the operation.
- Meaningful participation and involvement of Papua New Guinea citizens in the timber and related industries will be advanced at all levels.
- Utilisation of minor forest products and the development of small-scale forest-based industries are to be actively promoted.
- A central marketing strategy in conjunction with a State Purchase Option as a means of allowing Papua New Guinea to compete in an increasingly sophisticated world market will be pursued.
- To broaden the base of the forest industry sector, the range of products should be expanded, while at the same time seeking to diversify markets.
- To create more employment opportunities, appropriate technologies, which take optimum advantage of available human resources, will be promoted.

Strategies

Rationalisation of Established Forest Industry

Rationalisation is aimed at improving the present forest industry and consolidating it into a viable and profitable sector. It will:

- review the status of forest resources on a regional, provincial, and district basis;
- set the maximum level of log harvest allowable to sustain forest resources on a provincial basis;
- determine the level of sustainable industry activity, taking into account current requirements of established industries, with particular emphasis on maintaining processing industry to meet firstly domestic and then overseas demand;
- analyse the past and present performance of the industry on a regional basis and of each timber operator individually.

To safeguard the resource base of processing industries in and near urban centres, restrictions on log export from

other provincial, district or subdistrict headquarters will be announced, as determined by the Minister for Forests, from time to time.

Development Priorities and Resource Allocation

The emphasis of investment for new development areas will be on integrated timber projects, involving on-shore processing and log export, particularly in those parts of the country lacking development or with limited prospects for economic activity in other fields. To effect this, the following strategies will be adopted:

- Proposals demonstrating sound and viable processing units will be given priority in the allocation of resources.
- Development priorities will be presented in the National Forest Plan, formulated and agreed to by national and provincial governments.
- All future allocation of major resource areas will be made on a competitive basis using current administrative guidelines.
- In the allocation of timber areas the performance of established companies will be closely scrutinised, both in financial aspects and physical performance, in meeting timber permit conditions.

Forest-Based, Small-Scale Industries

The policy recognises that forest-based, small-scale industry will be an important part of the rural sector and that for this industry to be successful, adequate support will be essential. An advisory service to provide effective guidance to enterprises will be established.

Ownership of Timber Companies

- Papua New Guinea-owned enterprises in the form of Land Owner Companies are seen as an appropriate vehicle by which forest owners can become involved in forest management and industry. Guidelines will be issued to assist the formation and successful operation of nationally-owned companies.
- The right to develop future timber project areas will be open to both national and foreign investors. However, foreign investors will be prohibited from investing in log export operations unless this is part of an integrated project involving a minimum of 30 percent processing over the project life, or unless they are participating in a joint venture, or some other business association, with a majority national share holding.

Measures to Promote Timber Processing

- All new development projects will have a processing component as part of timber permit conditions. This component will be determined by taking into account the physical and financial constraints of the timber areas.
- High value timber species (all conifers, Ebony, Cordia, Teak, Black Bean, and Rosewood, Walnut, Pencil Cedar and Oak) are banned from export as logs, flitches or baulks.

- Log export of other high values species, which are well known on overseas markets, will be phased out over the next five years, subject to the capacity to process locally and end users' acceptance of the processed product.
- No export tax will be charged on processed timber products.
- Other incentives applying to the processing of forest produce will be introduced, subject to endorsement by relevant government authorities.

Export of Logs and Timber Products

While Papua New Guinea has emerged as a significant source of South Sea logs with increased potential for future expansion, the full benefits of this trade to the national economy and its people will not be realised unless firm steps are taken to address current deficiencies in marketing practices:

- The State Purchase Option will continue to be a standard requirement in all timber permits which allow for the export of logs.
- A centralised State Marketing Agent (SMA) will be responsible for:
 - (i) promoting the marketing of PNG's lesser known species;
 - (ii) exploring new markets and diversifying the export market base;
 - (iii) negotiating direct sales between supplier and end user; and
 - (iv) assisting landowner companies in selling timber and timber products at competitive prices.
- Issuing of timber permits will be conditional on approved marketing agreements.
- Timber companies with annual log export quota of 70,000 cubic metres or more will be required to market their logs by establishing their own marketing unit. Such companies will not be allowed to sell logs through sales agents other than the State Marketing Agent.
- Effective as of 1 January 1989, no timber company will be allowed to appoint any overseas-based agent as their exclusive marketing agent without prior approval from the Minister for Forests.
- All log export shipments will require approval on a ship-by-ship basis.
- The system of Minimum Export Prices (MEP) for logs and wood chips, as applied under the provisions of the *Export (Control & Valuation) Act*, will continue. Minimum export prices will be reviewed monthly.

The Domestic Market

- The government, principally through the Forest Industries Council until the proposed new legislation comes into place, shall assume an active role in promoting

domestic use of Papua New Guinea timber and its substitution in place of imported materials.

- Consistent with government policy to promote locally made products, all government tenders for building materials and furniture are to be submitted to the Timber Industry Board before final release.
- Import of timber, and other timber products or timber substitutes, which can be produced at competitive prices locally, is to be prohibited.

Royalty and Export Tax

- The system of royalty calculation shall be aimed at profit sharing between resource owners, investors and government. Until revised methods are announced, the current appraisal system with periodic adjustments of base royalty rates, based on movements of the consumer price index, will continue.
- Export tax on logs will be increased from ten percent to fifteen percent of FOB value when the new forest policy is approved and adopted by the government.

Forest research

Policy

- Research in forestry is vital for progress in this subsector. Due to its specialised nature, it shall remain a national function. While forest research is geared to achieve the goals of this policy, it must also be expected to contribute to the general advancement of knowledge and the quality of life. It is to be forward looking.
- The research mandate will be to provide essential support to the operational aspects of the management and utilisation of forest resources so that they are conserved and maintained to provide a sustained supply of timber and other forest products. This support will be in relation to:
 - (i) the planned increased rate of forest exploitation and replacement;
 - (ii) the development of scientific techniques for proper management of the resources;
 - (iii) greater utilisation and marketing and promotion of the country's forest products; and
 - (iv) better coordination of forest and forest product research in the country.

Strategies

Forest Research Institute

- To enhance research efficiency, to remove duplication of research between related departments and institutions and to streamline implementation of research programs, all research branches within the Department of Forests are to be integrated into one central institute.
- This strategy is being realised by establishment of the Forest Research Institute, located in Lae.

Research Priorities

The 5-year forest research program has identified the following priority areas:

- Silviculture and management techniques to promote regeneration of high value indigenous species.
- Logging techniques conducive to natural regeneration of valuable species.
- Techniques to increase forest productivity and economic returns from commercial plantations.
- Techniques from promoting multiple use of land and rehabilitation of degraded sites through agro-forestry and community forestry programs.
- Utilisation of Papua New Guinea timbers, with special emphasis on lesser known species for domestic use and export.
- Suitable techniques to improve efficiency in sawmilling, timber preservation, seasoning and grading of sawn timber.
- Cultivation, management and utilisation of minor forest products with the objective of increasing income of rural communities.

Dissemination of Research Results

Specifically, the role of the Forest Research Advisory committee will be:

- to review research programs and projects annually;
- to consider and approve new research projects;
- to liaise with relevant departments and agencies in order to identify and seek assistance from donor countries in funding research projects; and
- to consider and approve exchange of research scientists with overseas organisations for collaborative research projects.

As well as a recurrent vote, substantial monies have been sought via the Public Investment Program to fund and maintain a Forest Research Institute at Lae. Some 5.8 million kina over a 5-year period has been requested to supplement existing Japanese grant funding.

Public Investment Program monies have also been sought to finance and supplement a current United Nations Development Program (UNDP) project on Forest Management Research. This program is designed specifically to further our knowledge of sustained yield forest management and to demonstrate operational techniques to ensure sustained yield management.

Training and Education

Policy

It is recognised that a successful forest industry depends very largely on the skills and motivation of men and

women engaged in it. As a consequence, forest training and education are of fundamental importance.

- Training programs must be responsive to manpower needs of the forestry and forest industry sectors.
- To promote awareness and understanding among the general public on the importance of forest resources, an active program in public relations is essential. It is recognised that for effective communications it is very necessary that all persons involved, from forest owners to those engaged in the forest industry, are well informed on the conservation and wise use of our forests.

Strategies

Training programs

In consideration of the findings of a manpower study carried out in early 1987 by the Food and Agriculture Organization of United Nations (FAO) which identified critical staff shortages at all levels in the forest services, and also recognising the need to improve the perception by the forest industries as to employing PNG trained nationals, the following strategies will be implemented.

- The Department of Forests will continue to be responsible for undertaking diploma level training at the Papua New Guinea Forestry College, Bulolo, and for pre-employment technical training as well as short courses on specialised trade at the Timber Industry Training College, Lae.
- The situation regarding the shortage of manpower identified by FAO will be reviewed from time to time, from which it will be possible to determine graduate quotas that will be required from the training institutions.
- The question of whether training programs are adequately structured to meet the needs of the forestry and timber industry sectors will also be subject to periodic review. Amendments to programs and curricula will be made when deemed necessary.
- Provisions for in-service and refresher courses will be continued. Opportunities for post-graduate training and further training will be available to officers in the national and provincial forest services.

Governing council

A Governing Council for the PNG Forestry College and the Timber Industry Training College, which was established recently, will provide guidance and assistance in various aspects of training and management of the two colleges. The Council's eight members are drawn from government, the timber industry and academic institutions.

Public relations

The role of the Training Branch in the Department of Forests will be expanded and strengthened to include an information and public relations unit.

... in the last two decades Papua New Guinea has not departed from the Australian colonial legacy towards natural resources, environment and conservation: "If it's in the ground — dig it up. If it grows — cut it down. If it moves — shoot it!" All of this in the name of economic development.

CONCLUSION

Papua New Guinea's natural resources, including its trees and plants and its environment or ecosystems, are to be conserved and used for the collective benefit of Papua New Guineans in current and future generations. However, in the last two decades Papua New Guinea has not departed from the Australian colonial legacy towards natural resources, environment and conservation: "If it's in the ground — dig it up. If it grows — cut it down. If it moves — shoot it!" All of this in the name of economic development. The indiscriminate logging for export has had an adverse impact on the environment and the social life of the people. In the last five years, mainly as a result of international pressure from environmentalists, although also partly due to growing internal resistance from resource owners, the national government has embarked upon moves to change its policy on forest resources. The National Forest Plan contains the underlying principle of sustained yield management which says, "What you take, you cause to be replaced."

Although it is too early to assess the national policy on sustainable development, Papua New Guinea's daily newspaper *Post Courier* ran an editorial on 25 November 1991 under the title "Our logging needs policing":

The Barnett Forests Inquiry opened a can of worms that we called our forest industry. Apart from the bribery

and corruption that went on, and is still going on, it also revealed the lack of policing of foreign firms who were, and still are, raping our forests without fulfilling their contractual agreements. The national and provincial governments have all failed to ensure foreigners keep part of their agreements to exploit our forests. And while nothing is done to enforce our laws, these firms will continue to log our forests. (*Post Courier* 25 November, 1991, 10)

REFERENCES

- Barnett, T., 1987. "First Interim Report to the Prime Minister of the Commission of Inquiry into certain matters relating to the Forest Industry," *Interim Report Unpublished*, No. 1, November.
- Brunton, B.D. "Critique of the Drafting Instructions for the Review of the Forest Legislation and Regulations," *IASER Report*, December 1988.
- Clarke, W.C. *Place and People: An Ecology of a New Guinea Community*. Canberra, ANU Press, 1971.
- De'Ath, C. *Cut Over People*.
- Denoon, D. and Snowden, C. *A Time To Uproot: A History of Agriculture in Papua New Guinea*. Institute of PNG Studies, Port Moresby 1980.
- Fernando, N.A. and Nen, T. (eds.) *Towards a National Forest Plan*. An IASER Report, 1990.
- Gane, M. "P.N.G. Report on Forest Policy," FAO, 1985. Barnett, T. Commission of Inquiry into Aspects of the Forestry Industry: Interim Report No. 1, November 1987.
- King, P., Lee, W. and Warakai, V. (eds.) *From Rhetoric to Reality*. University of Papua New Guinea Press, 1985.
- Papua New Guinea, 1975. *The Constitution of the Independent State of Papua New Guinea*, Port Moresby.
- Post Courier*, 25 November 1991, 10.
- Waiko, J.D. "The People of Papua New Guinea: Their Forest and Their Aspiration," in Winslow, J.H. (ed.) *The Melanesian Environment*. ANU Press, 1977.
- Waiko, J.D. and Jeregari, K. "Conservation in Papua New Guinea: Custom and Tradition," in Morauta, L., Pernetta, J., Heaney, W. (eds) *Monograph 16 Traditional Conservation in Papua New Guinea: Implications for Today*. IASER, Boroko, 1980.
- White, K.J., 1977. "Constraints on Developing Forest Industries in Papua New Guinea," in Winslow, J. *The Melanesian Environment*, Canberra: Australian National University Press.
- Winslow, J.H. (ed.) *The Melanesian Environment*. The Australian National University Press, 1977.
- Wyatt-Smith, 1987. "The Management of Tropical Moist Forest for the Sustained Production Service," Cambridge, U.K.

The Government's Role in the Process of Sustainable Development

AN INDONESIAN EXPERIENCE

*Prijono Tjiptoherijanto**

It is first necessary to define what is meant by sustainable development in the Republic of Indonesia. In Indonesia it has been defined as "providing for current economic development demands without sacrificing the basis for meeting the demands of future generations". And Indonesia's view is that development can be seen as sustainable under two parameters: environmental sustainability and social sustainability. Indonesia also judges that in development efforts three important concepts apply: equity, social justice, and self-reliance. This article tries to look at the two parameters of environmental and social sustainability, and the three accompanying concepts, as they apply both nationally and internationally.

SUSTAINABLE DEVELOPMENT: NATIONAL ASPECTS

Government and national life in Indonesia is guided by the five principles of Pancasila, our national philosophical code. Pancasila's five principles are:

- Belief in One, Supreme God;
- A just and civilised humanity, with Indonesia taking its place amongst the family of nations;
- The unity of Indonesia;
- Democracy which is guided by the inner wisdom in the unanimity arising out of deliberation amongst representatives; thus creating . . .
- A condition of social justice for the whole of the people of Indonesia.

The principles of Pancasila are broad. But Pancasila covers the three important concepts of development mentioned above: equity, social justice, and self-reliance. And it provides the common vision to develop and move forward as a nation in all the diversity of topography and society that Indonesia encompasses.

Now let us turn to the three concepts — equity, social justice, and self-reliance — that underlie our approach to sustainable development. After that we will consider the two parameters of environmental and social sustainability within the confines of the Indonesian nation.

By equity we mean having a fair, equitable share in the benefits of development. At the moment in Indonesia, the island of Java has the largest population and the largest proportion of educational opportunities, industry, services and overall development. In contrast, many of the other islands are richer in natural resources. The government is now giving higher priority to development in the outer islands, such as those of Eastern Indonesia, and is encouraging both national and international investment to focus there.

In terms of social justice, the government's aim is to have the same just laws apply to all islands, ethnic groups and religions in the Indonesian family. In a country of Indonesia's size and diversity, if we are not on our guard it is easy for individual or local abeyances and distortions to slip in. In fact, this is one of the tasks of the National Institute of Administration: to ensure through nation-wide programs of training and education that civil servants have a common sense of mission and a shared approach to principles of administration and development. If we can achieve a shared approach, and the accompanying sharing of information, across this vast country of ours, it will go a long way towards making national development integrated and, therefore, sustainable in the planning and political sense. (It must be admitted that the sharing of information, even between different Directorates or Directorates-General within the same Ministry, is not one of Indonesia's strong points at the moment.)

The final concept underlying sustainable development is self-reliance. Constitutionally, Indonesia has a central, not a federal, system of government. This has resulted in dependence on central government for funding as well as for regulations and policy. The government is now placing major emphasis on decentralisation in order to give to local administrations greater autonomy in both decision-making and financial affairs, including local taxation. Time will be needed to implement decentralisation to full effect, and to sort out the areas of overlap between central and local decision-making and responsibility. But it is assigned high importance by the government as a means of encouraging greater self-reliance in the regions and therefore continued development of the nation.

Turning to self-reliance on the economic and commercial front, until the early 1980s oil played the dominant role in the economy. Since then, however, the government has aimed at a more balanced situation by promoting non-oil domestic revenues and export earnings and by introducing a number of important economic reforms. The latter have included overhauling the tax system; lifting subsidies from most parts of the economy; a series of policy packages designed to attract increased foreign investment and to promote non-oil exports; and accompanying measures in the financial and banking sectors aimed at better serving the emerging private sector and at further promoting the

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mobilisation of domestic funds to support economic activity generally and non-oil exports in particular. And now the government is increasingly encouraging development and growth through small-scale industries, as opposed to mega-projects requiring huge amounts of international financing, so as to ease the pressures on the balance of payments and to protect the country and the workforce from the swings of world economic upheavals.

In both governmental and non-governmental circles, through national policy in the present five-year development plan (Répelita V), and through the attention of the media, there is increasing public awareness that a longer-range perspective is needed for the management of the country's resources for sustained economic growth. The challenge for Indonesia is to maintain the pace of development for a large and growing population without destroying the vital natural resource base or sacrificing too much environmental quality.

Increased self-reliance is the aim. Yet the fact remains that the economies of the developing countries of the South are at present, for better or worse, linked with the fortunes, demands and outlooks of the industrially developed nations of the North. Wider, global concepts of equity and self-reliance are called for, a theme that will be returned to in more detail later. The idea of global self-reliance brings us now to the consideration of what is more generally meant by sustainable development: the need for sustainability of natural resources and the natural environment.

RESOURCE AND ENVIRONMENTAL SUSTAINABILITY

Indonesia is blessed with abundant natural wealth and since the 1960s its growth has been based largely on the consumption of petroleum, forest, agricultural and fishery resources. Although future national growth is increasingly linked to industrialisation for both domestic and international markets, natural resources will continue to play an important part in overall development strategy. In both governmental and non-governmental circles, through national policy in the present five-year development plan (Répelita V), and through the attention of the media, there is increasing public awareness that a longer-range perspective is needed for the management of the country's resources for sustained economic growth. The challenge for Indonesia is to maintain the pace of development for a large and growing population without destroying the vital natural resource base or sacrificing too much environmental quality.

In the government apparatus, planning for and implementation of resource management is carried out by a number of agencies. National cross-sectoral policy and planning is split between the National Development Planning Agency

(BAPPENAS) and the State Ministry for Population and Environment (MEN NEG KLH). Specific policy and nationwide implementation are handled by the relevant line ministries. In the provinces, aspects of resource management are handled both by the representative offices of the line ministries (Kanwil) and their counterpart offices (Dinas) in the provincial administration; while coordination of their activities is the responsibility of each province's planning agency (BAPPEDA).

At the level of national policy, both BAPPENAS and MEN NEG KLH are involved in reviewing policies that affect specific resource sectors, such as agriculture, forestry or water. But both institutions require strengthening in the conduct of policy analysis for natural resource management, particularly concerning cross-sectoral issues.

The line ministries are responsible for specific policy and implementation. Traditionally, they have concentrated on the technical side, and up to now they tend not to have developed the capabilities required to identify new policy and management approaches for sustained economic development combined with improved environmental management. Their approach tends to be highly standardised, usually responding to problems identified centrally in Jakarta, and applicable only to a very narrow range of environmental and social conditions. But Indonesia is a country of diverse environments with a wide variety of circumstances, and this means that present resource management approaches are often inappropriate and function poorly. In addition, even where legal regulations are well-formulated, their application in resource management practices often assumes levels and amount of control that government agencies cannot possibly handle at present.

At the provincial level, the provincial planning agencies (BAPPEDA) have the nearly impossible task of coordinating the activities of the central ministries' representative offices (Kanwil), which are centrally funded and follow objectives set mainly at the national level; while at the same time most of the implementation in the field is carried out by the parallel, counterpart offices (Dinas) of the provincial administrations. In theory the central Kanwil are now answerable to the provincial governors, but in practice their planning still largely occurs at the central, national level.

RESOURCE AND ENVIRONMENTAL SUSTAINABILITY: IMPLICATIONS FOR POLICY FORMULATION

Clearly much remains to be done to strengthen the government's role in resource management in Indonesia. First of all, increased specialist and technical expertise is required at both central and provincial levels. At present, the government is emphasising an increase in the number and types of functional positions (such as researcher, trainer, medical doctor) in the civil service. A full and workable career and emolument structure needs to be established for the functional side of the civil service in order to attract and retain high quality specialists, particularly at the provincial and district levels. In the past, the civil service offered an attractive prospect of life-time career and security, but now the government's success in encouraging the private sector ironically means that university graduates are being increasingly drawn to that sector, which can now

offer better conditions, not only financially, but also in terms of welfare and pension.

One possible way of attracting bright young graduates to specialist fields within the government orbit, for a time at least, is to follow the example of the medical profession. Newly-graduated doctors are no longer required to be civil servants for life. Instead, following graduation, they are required to serve in a regional medical facility for two years, after which they are free to join the private sector if they wish. A similar kind of national service could be instituted for specialist researchers and analysts, although it would need very careful planning to ensure that they were posted to areas and positions where they could be used to the greatest effect.

Attention must also be paid to continuing in-service training and up-dating of specialist personnel. To make this happen official regulations and guidelines will be required. These aspects all lie within NIA's area of responsibility for the planning, guidance and monitoring of civil service training.

Turning to the question of national policy, Indonesia is an expert practitioner of "crisis management", taking short-term decisions to face immediate issues. For both economic and environmental sustainability, however, Indonesia needs to foster her ability in policy analysis and the drawing up of long-term policy and plans. Conceptual and analytical ability, and the accompanying tools and mechanisms, should be accelerated in the agencies with cross-sectoral responsibilities (BAPPENAS and MEN NEG KLH), in other agencies also responsible for allocating government and donor resources and for coordinating implementation of government policies (for instance, the Ministry of Finance and the Cabinet Secretariat), and in the specific line ministries. Cross-sectoral and resource management issues should be refined into specific policy, and further policy should be set for their coordination, with clear delineation of responsibilities. And readily accessible mechanisms, and public awareness and participation, are required so that all government agencies — cross-sectoral, line ministries, and regional agencies — are, as a matter of routine, held accountable for the impacts of their programs and activities.

It must be admitted, however, that, in the Indonesian civil service, coordination so far has not come easily, not only between agencies but even between divisions within a single organisation. For this reason, coordination requires institutionalisation, possibly with new arrangements of administrative structures and with very deep and careful analysis. In certain areas, so many agencies and units have a share in the responsibility that little action is effected. A recent example of a new institutional mechanism is BAPEDAL (Badan Pengendalian Dampak Lingkungan) which was set up in 1990 under the Ministry of Population and Environment and is charged with consolidating authority and responsibility for pollution monitoring and control at both national and provincial levels. Other similar new institutions may be needed, with responsibility and authority rationalised and brought together into them.

Recent reviews of the major environmental and resource management issues facing Indonesia have been unanimous in the recommendation that greater capacity and authority for environmental planning and management should be assigned to the provincial and district levels. And it is encouraging that, in spite of the constraints, the provincial

planning agencies (BAPPEDA) are beginning to assert themselves as lead agencies to coordinate and guide the activities of the central and regional governments, with the aim at least of achieving a better balance between national and regional priorities and objectives. This assumption of leadership needs to be made official, possibly with inter-agency committees on specific issues under BAPPEDA chairmanship.

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Likewise the relationship and responsibility-sharing between Kanwil and Dinas needs to be clearly worked out. The Kanwils' vertical responsibility to their central ministry and their theoretical accountability to the provincial governor needs to be rationalised in order that lines of management become clear and simple. Decentralisation and greater regional autonomy are key areas of emphasis for the government at the moment, and it is to be hoped that these and related questions can be faced and solved in the near future.

Resource and environmental sustainability requires the active and cooperative participation of policy-makers, analysts, researchers, managers and field officers from a wide range of institutions, both public and private. Indonesia is too vast for the government at present to be able to exercise full monitoring and control, even when laws and regulations are completely satisfactory in formulation. Assistance must be called in from universities, non-government organisations (NGOs), regional and local committees and groups, and individual members of the public. Future policy-making must include consideration and implementation of this aspect.

Finally, in this overall strengthening process, a very important factor is the improved generation, management and dissemination of information concerning natural resource management. Efforts in sustainable development necessitate a movement away from narrow sectoral interests to the wider perspectives of resource systems, from standardised and universal technological interventions to more specific and targeted changes based on an understanding of local and regional resource management problems and alternative

solutions. The National Institute of Administration sees one of its future roles as that of acting as a clearing-house for Indonesian government agencies, although the full details remain to be worked out as to how subject-specific that service should be. The NIA will give full support to a clearing-house for resource management and development, whether it passes through NIA itself or directly from another institution.

SOCIAL SUSTAINABILITY

The concept of sustainability, in all its facets, will itself only be sustainable when the populace as a whole sees its importance and applies social pressure to maintain and enforce it. One way to work towards this is through the general educational system.

The State Guidelines for the present five-year development plan see education as having two roles: first, education should prepare manpower capable of supplying the kinds and numbers of workers needed for development; and second, education should create manpower capabilities which function as the driving force of development.

In the long-term education of the young, the government is planning to increase compulsory education for primary school up through the junior high school level, and to move away from a rigidly centralised curriculum to one which includes a component on local studies. Pupils will have more time to gain a deeper and more relevant appreciation of the issues of the environment and sustainable resources, particularly where they apply to their local area. At the same time, it is especially important in a country of Indonesia's cultural diversity that the local content of the national curriculum should be based on deeper research and understanding of each local culture, rather than being based solely on outside centralised assumptions.

In the past, developing countries have tended to overlook the fact that the most fundamental ability that is required in the workforce is the ability to adapt to changing methods and technology. And that ability, which includes the power and flexibility of general understanding and inference, is cultivated primarily by a well-designed "general education". Developing countries should now be aware that the difference in adaptability and efficiency of the workforce between developed and developing countries is really due to the difference in the quality of general education.

Indonesia is gradually and steadily working on the improvement of the general education system, but there still remains much to be done. For instance, based on recent figures, some 34.5 million people, or around 66 percent of the Indonesian labour force, have not completed primary school.

In addition to planning for a relevant, dynamic and responsive general education system, there are three other key issues that apply to Indonesia. The first is that, after general education, vocational education has to be continuously upgraded to adapt to the rapid change of technology, whereas at present vocational institutions and systems appear static and have been largely disregarded.

The second key issue is that funding for effective vocational education and continual up-grading must be provided. Hitherto such education has usually been publicly funded

and sometimes by official foreign grants, because it has been regarded as a non-profit-making activity. But the rapidly increasing need for well-educated workers reveals more clearly who benefits from the vocational education system and who should take responsibility for financing it. In the future private enterprises will be expected to participate in providing training facilities and know-how, hardware and software, not only to meet their own immediate needs, but also to upgrade the overall quality of the national labour force on which the success of their business rests.

The third education-related issue for sustained national development is that management training becomes more and more important as industrialisation proceeds. In most of the Asian developing countries like Indonesia, in the early stages of industrialisation the burden of management has largely been taken by limited local elites who usually joined in partnerships with foreign business groups. If Indonesian industries are to proceed further in the rapidly changing environment of technology and the world economy, it is important to foster indigenous management and to organise a comprehensive system of management education, training and regular upgrading and awareness-raising.

In Indonesia's case another vital factor that comes under both the social and environmental sustainability is the matter of population growth and control. Indonesia already has a population of around 180 million, of whom 60 percent are under 20 years old. It is essential that we maintain a balanced population if our efforts in national development and the eradication of poverty are to be sustainable. Through both government and NGO initiatives, Indonesia is running a successful family planning program, but efforts must be maintained and intensified if self-sustaining development is not to founder on the rock of mushrooming population growth.

In this and other areas of social education and awareness-raising, both government and non-government organisations (NGOs) are playing an active part. The government encourages the involvement of NGOs, with the requirement that they respect and foster national stability. In general, NGO activity does not only involve their specialist areas, such as family planning or environmental monitoring, it also embraces wider concepts, such as empowerment and self-management and evaluation in the local community through assisting local institutions and associations; through working with young people in general education programs; or through advising and empowering strategic groups in society who influence community development, such as women's groups. NGOs, with the government, are also concerned with building up networks among themselves so as to achieve maximum national effectiveness through understanding, collaboration and coordination in activities and approaches.

SUSTAINABLE DEVELOPMENT: THE GLOBAL CONTEXT

We have looked at some of the questions and some of the ways that concern Indonesia in its quest for sustainable development within its own borders. Now let us turn to consider sustainable development's global aspects.

As has very recently been reiterated by the President of the Republic of Indonesia in his speech at November 1991 summit meeting of the Group of 15 (G15) developing countries in Caracas, Venezuela, it is the government of Indonesia's view that equity is the all-important concept. Equity applies not only within one generation but between generations, and not only within one nation but between all nations of the world. The pursuit of equity means the pursuit of sustainable development and the eradication of poverty at the same time, and, on the global scale, it requires interdependent development.

Interdependence implies balance, but at present this is not the case. The balance remains greatly in favour of advanced countries in terms of markets, production and monetary flows, possession of technology, and general resource flows. We need to improve the symmetry in relations between nations. The responsibility for this does not rest only on the so-called developed nations, but it does mean that they should help to facilitate and enable development efforts in less developed countries. The faster the developing countries reach the point of minimum development beyond which development becomes self-sustaining, the better it will be for all. This is also a condition for eradicating poverty and developing the capability to deal more efficiently with environmental problems.

The attainment of true global interdependence and balance requires attention to three factors. The first is better symmetry in the flow of resources between advanced and developing countries. And this does not simply mean greater aid and assistance, but also changes in investment pricing and interdependent production patterns, changes in fiscal regimes or tariff systems, and increased environmental support.

The second factor in increased global interdependence and balance is the accelerated transfer of environmentally-friendly technology. This will bring on the third factor: a restructuring of our global economy, away from the developing countries' present preponderance of agricultural or raw materials processing industries, to global interdependence under which conditions exist for developing countries to have investments and new technologies from abroad, to have markets where their products can be sold at prices that reflect their real manufacturing costs, and to obtain prices for their raw materials into which realistic costs for environmental preservation and natural resource renewal are integrated.

An example of this last point is the recent forest fires in Kalimantan which captured world attention and whose smoke affected communications and visibility not only in Indonesia but also in our neighbours, Singapore, Malaysia, Brunei and the Philippines. Our world society is now fully aware of the concept of a global life-support system. So if natural resources in less advanced areas perform a life-support function, then they become a world concern. The countries that "own" these resources must be assisted *not* to exploit them for pure commercial gain, either by being paid for their support-system role, or by obtaining prices for their raw materials that contain the real funds to be ploughed back for sustainability and environmental guardianship. In the case of Indonesia's Kalimantan rain forest, to prevent and control fires and other forms of environmental degradation in these vast tracts we need a more permanent and extensive monitoring system and range of

equipment than we have been able to set in place until now, due to other national development demands in our archipelago. If we in the world community agree on our global interdependence, we should also agree to cooperate together to provide the wherewithal for self-sustaining development, so that effective monitoring and prevention mechanisms are affordable by the countries that are the natural custodians of such important but fragile resources.

The absence of equity — whether perceived or real — means that the funds needed for the control of environmental quality and for its effective renewal will not be generated. In that case, we will not deliberate as equals, but will be seen as two groups: impoverished countries seeking help and wealthy countries calculating the largesse that they can afford. Negotiations will be seen (and I quote from Dr Emil Salim, the Minister for Population and Environment) "as cynical horse-trading between countries which are using the quality of the world's environment and poverty as their respective hostages".

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It is the view of the government of Indonesia that this must not be allowed to happen. On the global scale, we must work together to build a new set of values, with a shared focus on the pursuit of equity.

CONCLUSION

In conclusion, therefore, within the borders of Indonesia, the government tries to bring about this sense of equity through the national philosophy of Pancasila, and through measures which encourage sustainability through self-reliance, increased private participation, and improving general and specific education, while enabling increasingly efficient policy-making, monitoring and control. On the global front, Indonesia's concern is to work towards a shared world-wide definition of equity, so that all countries can be united in sustaining our common desire for improvement through care for our common heritage of natural resources and their effective management. The will is there, and with God's help we will achieve our goals.

SELECTED REFERENCES

- McCauley, David and Lubis, Rusdian (1991). *Economic Development and Environment in Indonesia*. Paper presented for Sixteenth Conference of the Federation of ASEAN Economic Associations, Bangkok, Thailand, November.
- Salim, Emil (1988). *Sustainable Development and ASEAN Cooperation*. Opening address at Eleventh Meeting of ASEAN Expert Group on the Environment, Yogyakarta, Indonesia, July.

- Tjiptoherijanto, Prijono (1991). *Economic Resilience in Indonesia: Perspectives and Performances*, February.
- Tjiptoherijanto, Prijono (1990). *Productivity in Education: Redefining Traditional Values*. Paper presented at Seventh World Productivity Congress, Kuala Lumpur, Malaysia, November.

Environmental Concerns in Sustainable and Equitable Economic Growth and Development in Singapore

Linda Low*

While economic growth and development since the 1960s has continued unabated, although punctuated somewhat by a stop-and-start syndrome, it was not until the late 1980s that increasing deterioration of the global environment and the need for international action gained attention (Akerman 1990). The "green revolution" started in many developed countries at the domestic level and spread to capture an international audience. It was realised that environmental issues were not merely local or regional concerns, extraneous to economic growth, matters of health, aesthetics and perhaps ethics (Mathews, 1991). The latter half of the 1980s saw an unprecedented litany of transforming events and changes in international relations. Global warming, toxic wastes, acid rain, declining biodiversity, stratospheric ozone depletion and chlorofluorocarbon (CFC) emissions, the industrial accident at Union Carbide in Bhopal in India in 1984 and all forms of environmental degradation arose as significant factors affecting prosperity, governability and security of individual nations, as well as the sum total of humanity in the world.

Economists, political scientists, sociologists, geographers and other social scientists have since joined the study on the environment. This paper is indeed a modest effort to look at the problem from the perspective of a small economy in Singapore which has neither the natural resources nor international weight to influence the environmental debate very much. However, because Singapore is largely an urban city state with a successful record of economic growth and development as a newly industrialised economy (NIE), its experiences and attempts to integrate environmental concerns with economic priorities can be illuminating.

The paper provides a quick review of Singapore's demographic and economic growth and development and how the environment was planned and set in tandem with economic growth policies. Environmental issues and impli-

cations of these growth and development strategies are then scrutinised. Some policy implications are examined in the final section.

ENVIRONMENT AND ECONOMIC GROWTH IN SINGAPORE

In the 1950s and 1960s Singapore moved from an entrepot trading economy to a more diversified base supported by manufacturing and service activities. When Singapore first gained self-government in 1959, followed by the merger with Malaysia in 1963 and its subsequent exit in 1965, its political survival was already very much considered in conjunction with its economic sustainability. Confronted with these challenges, together with population growth, high unemployment and the declining incomes associated with stagnating entrepot activities, the People's Action Party (PAP), which has been the government continuously since 1959, took to industrialisation through foreign investments with little hesitation. Until the mid-1970s, the manufacturing sector was still largely underpinned by low value-added, labour intensive and low technology industries. Industries such as food processing, timber and wood products, textiles and garments, electrical and electronic assemblies, iron and steel, shipbuilding and repair, and metal products provided the much needed employment.

By 1979, after the first oil induced recession, belated industrial restructuring took place, with a corrective wage policy among other instruments, to force the pace of industrial upgrading into high value added and high technology activities. Thus, new industries like aerospace, biotechnology, fine chemicals and healthcare products, together with a greater orientation toward automation, robotics, research and development and new technologies began to replace land-intensive and pollution-prone industries like saw milling and pig farming. Even the diminutive agriculture sector which used to be self-sufficient in poultry and eggs gave way to cleaner and higher value-added pursuits like aquarium fish farming, hydroponics and horticulture for growing vegetables and orchids. By and large, in spite of its reliance on multinational corporations (MNCs), Singapore has appeared to escape pollution intensive industries or has, through its stringent laws and regulations, avoided the more severe adverse effects of industries like petroleum refining, chemical processing, refining of heavy metals and others.¹

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Physical land planning has also been a national concern since the State and City Planning (SCP) project under the Planning Department of the Ministry of National Development in the 1960s (Andrews and Chia, 1979). Under the master plan, zoning which can be waived only with payment of a developmental charge has ensured some orderly and desired use of land. Singapore had an original land area of only 617.8 square kilometres, which has been increased to 633.0 square kilometres with land reclamation from the sea.² Very careful and stringent planning and control of land use has evolved to support economic and social activities.

Between the two census years 1980 and 1990, population rose from 2.4 million to 3.0 million and the persons per square kilometre rose from 3,907 to 4,743 respectively. The urban city state supports 2,882 kilometres of public roads and 542,352 motor vehicles, of which 271,174 are private cars. In addition, as a premier transportation and communication centre, its ports handled 44,600 vessels or 483,000 gross registered tonnes and 106,223 thousand freight tonnes of inward cargo and another 81,567 thousand freight tonnes of outward cargo in 1990. Singapore displaced Hong Kong as the busiest container port, and its airport is also judged as the best in the region, with 48,803 aircraft landings, over 7.2 million passengers arriving and departing, and another 1.2 million transit passengers in 1991. Over 5.3 million tourist arrivals have been received in 1990 compared with 2.6 million in 1980.

These statistics demonstrate the infrastructural facilities required and suggest the extent of human congestion and resultant adverse environmental impact that would occur were it not for careful mapping and planning of strategies. The Government has taken some rather draconian measures as in its control of car ownership and usage which probably has no parallel in severity in terms of high road and petrol taxes, registration fees, import duties, car parking charges, area licensing schemes and others.

Right from the 1960s, the SCP project, with the help of United Nations expertise, had collected data to prepare comprehensive and project level planning for efficient and optimal land use. This has to be fairly and optimally balanced for industries, transportation and housing, urban renewal, recreation and a host of human activities for a population that has grown both affluent and educated over the years. With economic growth in a more stable and resilient path, the Government had the foresight and vision to create the Parks and Recreation Division within the Public Works Department in the Ministry of National Development in 1973.³ Its predecessor, the Parks and Trees Division, had planted more than half a million trees and shrubs at the height of its activities between 1971 and 1972. Other environmental control agencies which were under the Ministry of Health before the establishment of the Ministry of Environment in 1972 looked after waste disposal, water and air pollution, industrial pollution and other aspects of environmental health. That the Air Pollution Unit was directly under the Prime Minister's Office in 1971 reflects the concern and importance which the Government attaches to the environment (Singapore Science Council 1980).

By 1991, Singapore's record in protecting the environment can be judged as more than fair, commensurate with its modern and affluent industrial structure. It has joined other countries in banning manufacture and import of CFC

products in February 1991. It is even ahead of the schedule set by the Montreal Protocol which requires countries to reduce the use of ozone-depleting CFCs by the year 2000. The consumption of controlled CFCs has been reduced from 4,000 tonnes in 1986 to 3,500 tonnes in 1990. In January 1991, Singapore introduced lead-free petrol which would reduce lead emission from car exhausts. This also paves the way for the use of catalytic converters which burn off harmful pollutants before they exit through the car's exhaust system. In Singapore, lead-free petrol costs less than leaded petrol because of the intervention of a tax to encourage more motorists to switch to lead-free petrol.

The latter half of the 1980s saw an unprecedented litany of transforming events and changes in international relations. Global warming, toxic wastes, acid rain, declining biodiversity, stratospheric ozone depletion and chlorofluorocarbon (CFC) emissions, the industrial accident at Union Carbide in Bhopal in India in 1984 and all forms of environmental degradation arose as significant factors affecting prosperity, governability and security of individual nations, as well as the sum total of humanity in the world.

Private sector initiatives are also drawn into the protection of the environment with the formation of the National Council of the Environment. This is a 19-member voluntary, non-governmental organisation to help encourage and coordinate public participation in environmental protection. The Council aims to promote awareness in schools and businesses of the need to produce environmentally-friendly products and have individuals think and act "green". In the nature reserves, where sanctuaries for wildlife are preserved, the Malayan Nature Society which is closely associated with the academia, the Science Centre, the Singapore Zoological Gardens and the National University of Singapore among others, are also active in their respective fronts.

Despite its small size, which impinges upon its efforts and options to survive, Singapore has not spared concern on the environment. It has looked after both its economic and industrial needs, servicing external units (shipping, airborne traffic, tourists) as well as its residents. Its housing and other social amenities are very comfortable and blend well with the environment; its concrete jungles disguised through intensive campaigns to keep Singapore green and clean. While high taxes, fees and fines have their adverse effects in price distortions and changing decisions of producers and consumers, the macro-economic gains in a better and healthier environment which have longer term and wider implications beyond individual desires, are more crucial.

Table 1 summarises the socio-economic statistics in Singapore between 1980 and 1990. They portray some harmony and balance in social and economic growth and development in the context of a compatible environment.

The statistics reveal a successful economy that has achieved a fairly high social standard of living.

ENVIRONMENTAL ISSUES AND PROSPECTS

The preceding text has painted a rather cosy blend of environmentally-friendly economic growth and development and there seems to be no crucial and significant problems which require urgent or drastic action. Be that as it may, there are still many issues which need to be raised in the context of Singapore's scarcity of land and resources, its competing needs for economic, social, recreational and environmental goals and the overall changes in terms of its industrial structure, demographic structure and even governmental style. By the year 2000, Singapore will have an increasingly ageing but educated and affluent population. Science and technology, which transmit and diffuse rapidly from all over the world to Singapore, will greatly influence its patterns of production and consumption and standard of living. All these factors can cut both ways; like affluence, for example, which may increase demand and abuse of the environment.

The questions and issues which can be raised include the impact of these new developments and trends on environment degradation or improvement, and whether voluntary behaviour and free market forces or governmental regulatory controls and other mechanisms of checks and balances, are necessary. The concept of sustainability in growth and development has to be addressed.

Beginning with the definition of sustainability is appropriate, as it provides the upper bound of conditions for what is economic growth, development and environment concerns. In conventional economics, sustainable growth in the context of short-run growth policy is interpreted as a situation in which macro-economic management policies have succeeded in minimising business cycle fluctuations (Turner 1988, 6). Through such demand management poli-

cies, national growth rates would thus be kept close to the feasible maximum growth path. The latter would be conditioned by growth in labour, capital, technology and other institutional constraints.

In the long term, however, sustainability takes a wider but also more elusive connotation. Intuitively, sustainability arguments stress the need to view environmental protection and continuing economic growth as mutually compatible and not necessarily conflicting objectives. Sustainability can thus imply compatibility with natural resource base limitations and biospherical waste carrying capacities and require a search for what is called bioeconomic equilibria (Clark 1976). There thus seems to be some common ground where a fruitful and politically practicable partnership of ideas, values and policies from across the spectrum of environmentalist groups, might develop. In economics and development planning, sustainability has long been advocated in eco-development paradigms (Norgaard 1984).

But while sustainability appears acceptable as a mediating term designed to bridge the gulf between the builders and developers, on one hand, and the environmentalists, on the other, there can be ambiguities which can be exploited. For instance, under the guise of sustainability, almost any environmentally sensitive program can be justified. Moreover, debate about the sustainability of the international economic system inevitably involves notions of justice and equity, both on an intragenerational and an intergenerational basis. The politics of sustainability are as difficult to resolve as the economics of it.

Even when these ideas of sustainability are accepted, some criteria to evaluate environmental resources are indicated. The cost-benefit analysis (CBA) approach comes to mind and in this regard, the technique has made progress from two sources (Nash and Bowers in Turner 1988). One is development of more rigorous empirical models of surrogate markets, building from the theoretical foundations of Rosen (1974). Another is progress in refining and testing stated preferences and techniques in a wide range of areas. But, as usual, it is dealing with uncertainties in forecasting the effects that is the greatest problem.

To apply these ideas and issues to the Singapore context, one would first have to determine what is the compatibility of sustainability with its natural resource base limitations and biospherical waste carrying capacities. An interesting development here is that Singapore has somehow managed to escape the confines of its resource base limitation by land reclamation, building technology which allows air space to be substituted for more limiting land space and, most important of all, the recent idea of "borrowing" space and resources from its neighbours. The latter is best exemplified in the growth triangle which covers economic cooperation, mainly in industries involving Johor in Malaysia, and the Riau Islands in Indonesia. Since the official inauguration of the growth triangle in 1990, labour and land intensive industries have relocated more rapidly to Batam Island in the Riau Province and Singapore investments have similarly accelerated in Johor. The three locations typify three levels of industrial development and render them compatible and complementary in such activities. At the same time, the economic and political goodwill has also allowed Singapore to tap into water and natural gas resources from Malaysia. Its sustainability is thus

Table 1: SOME SOCIO-ECONOMIC INDICATORS IN SINGAPORE

	1980	1990
Gross national product, mkt prices, S\$m	24188.5	63905.1
Gross domestic product, 1985 prices, S\$m	28832.6	57016.2
Per capita indigenous GNP, S\$	8343	18437
Gross national saving/GNP, %	34.2	44.6
Total exports/GNP, %	171.4	149.0
Visitor arrival, '000	2562.1	5322.9
Population, '000	2413.9	3002.8
Population density, persons per sq. km	3907.0	4743.8
Median age, years	24.5	29.8
Crude birth rate, per 1,000 population	17.1	18.4
Crude death rate, per 1,000 population	5.2	4.8
Infant mortality rate, per 1,000 live births	11.7	6.7
Literacy rate (%)	84.0	90.1
Electricity consumption per person, kw hr	2529.5	5276.5
Water consumption per person, cubic metre	89.7	120.0
Air pollution levels, urban		
Total acidity, microgram per cubic metre	37	21
Smoke levels, microgram per cubic metre	30	22
Nitrogen oxide levels, microgram per cubic metre	41	45
Dust fallout levels, grams per sq metre per mth	0.5	0.7

Source: Singapore, Department of Statistics, Yearbook of Statistics, 1990.

enlarged or prolonged and the environment impact is transferred or reduced.

While the 1970s and 1980s have managed economic growth and development with a tolerable impact on the environment, the 1990s and beyond will have to deal with smaller reserves of nature and possibly more man-made green environment and manicured gardens. In 1991, the Government set up a new statutory board, the National Parks Board, to reinforce its concern that nature conservation and a natural environment are among the heritages that Singaporeans must cherish. With a more affluent state, the Government is also increasingly aware that quality of life is no longer a soft value to be shunned. In both its Concept Plan and Strategic Economic Plan (SEP), there are concerns with physical living conditions and quality of life in the next lap.⁴ For instance, the SEP envisages the power of information technology in living in a smart city with high technology facilities and services. Technology similarly provides comfort and convenience to support an eventual population of four million people in Singapore. Sustainable economic growth thus appears compatible with the environment and both are well charted and integrated.

While the macro-economic aspects seem well taken care of, there are, however, some remaining issues at the implementational level. One concerns the new style of socio-political management, first witnessed after the general elections in 1984 and again in 1991. In both elections, the ruling PAP Government suffered losses both in terms of its majority votes and in opposition parties gaining seats in Parliament. The number of opposition Members of Parliament has increased from two in 1984, to four in 1991.⁵ Even after the 1984 elections, with the recession in 1985, the Government had to fine tune many economic policies like high wages and high saving, surplus public sector budgets which have contractionary effects, as well as rescaling public sector dominance in the economy via privatisation. A more open, consultative style of government and a more deregulated and liberal economic and business environment were further endorsed and implemented when Mr Goh Chok Tong succeeded Mr Lee Kuan Yew as the second Prime Minister in November 1990, following Mr Lee's 31 years in that office.

Among the many social changes which took place and which would have an impact on the environment is the full implementation of Town Councils and the devolution of the Housing and Development Board (HDB) together with the new roles of the Urban Redevelopment Authority (URA) (Chua 1991). With greater self-determination in the management of public housing estate under the Town Councils and the concomitant withdrawal of these services by the HDB, the issues of efficiency and standards are perhaps still too recent to be evaluated. The Urban Redevelopment Authority is now the sole authority responsible for planning in Singapore and it has invited public participation in planning new towns and facilities. Again, whether this invitation will yield greater opportunities for environmentalists will be an interesting situation to follow.

However, the perceived setback at the polls in August 1991 by the Prime Minister, Mr Goh, who asked for a clear mandate from the public, defined as at least 65 percent of the vote, but received only 61 percent, will reverse the style of political management. Already, with a clear two-party system in Parliament now, the role of Government

Parliamentary Committees (GPCs) is likely to be extinguished. Strictly speaking, GPCs constitute a misnomer as they are committees of the PAP and not the government, though the two are easily and often blurred given the hegemonic rule of the PAP. Again, the situation is still in flux and how much the open, consultative political style of government would change is yet to be seen. However, having experienced a more relaxed political style, the electorate cannot easily be put back into a more restrictive mode.

In the long term, however, sustainability takes a wider but also more elusive connotation. Intuitively, sustainability arguments stress the need to view environmental protection and continuing economic growth as mutually compatible and not necessarily conflicting objectives. Sustainability can thus imply compatibility with natural resource base limitations and biospherical waste carrying capacities and require a search for what is called bioeconomic equilibria (Clark 1976).

The point to be noted in terms of environmental impact is simply whether the Government would withhold some or more of the promises of a more gracious and higher quality life style in the next lap. Even if it does not or cannot retract from these plans and ideas, the generosity with which it has been allocating public funds may be trimmed. The concepts of quality living with more land and facilities for recreation and social activities may be affected. The 1991 elections have also seen promises of allocations from official reserves to finance the Edusave and the Medifund for Singaporeans.⁶ Under Edusave, every child of school-going age of up to 16 years, would receive a sum which can be used to meet educational expenses. The Medifund, which is similarly funded from an endowment from the official reserves, will be used to top up the Medisave accounts of the poor.⁷ All these may or may not be retracted or reduced in generosity. However, while the Government is unlikely to be so childish, the fact that these higher orders of living are not free and must be financed somehow must be borne in mind.

On the broader issue of environmental concerns as international public goods (Kindleberger 1986) and the impact of country size on such provision (Chan 1991), it is merely noted that Singapore has not been a dormant partner in protecting the environment. This is not only motivated by its ethical values, but the existence of many well-established multi-national corporations (MNCs) in Singapore is another contributing factor. As these MNCs practice good environmental protection policies at their headquarters and elsewhere, they could be expected to do the same in Singapore. Another factor is the proximity of resource abundant neighbours like Indonesia and Malaysia which have equally high regards for their environment. Even the sale of more water to Singapore which required building a new dam across a river resulting in some environment and wildlife

being destroyed raised some controversy and debate in Johor.

SUMMARY AND POLICY IMPLICATIONS

In Singapore's rapid pace of economic growth and development to meet urgent challenges and problems in the 1960s and 1970s, the concern with the environment was not immediate. However, there has been due recognition of the dangers of concrete jungles, the tussle between nature lovers, on one hand, and decision-makers and guardians of the national purse strings, on the other, and environmental effects. The right blend of laws and regulations, backed by institutions which ensured acceptable levels of pollution, environmental exploitation and the like, appeared to have been effective. By most common indicators, Singapore does not seem deprived or have deprived the environment of its natural richness.

As Singapore moves into the next lap and beyond 2000, its economic sustainability has taken a new dimension in terms of its being a regional economy, tied up in many production and servicing activities with its immediate neighbours. The growth triangle ensured not only relocation of Singapore's land and labour intensive industries to Johor and the Riau Islands, but also provided it with the water and recreational facilities for its people. So long as the warm political relationship is sustained, this partnership, which has both economic and environmental impact, will ensure a quality of life style which befits an ageing and more affluent society like Singapore.

Singapore must clearly maintain, if not be more active in, its role as a protector of the environment. It is able to do so for a number of reasons. First, it is well imbued with the philosophy of a green and clean environment and campaigns and high fines have given that message to its residents. Second, the presence of many international bodies and agencies, not least the several hundred MNCs operating in Singapore, means that environmental issues simply cannot escape it. There is also the revolution of information technology in a very open and modern system in Singapore to alert it to environmental movements anywhere else in the world. Third, Singapore as a role model for successful economic growth without great harm and detrimental exploitation of the environment, would be a useful one for many developing countries and their metropolitan centres. Its strategies and policies in industrial, housing, urban and other developments, while they cannot be wholly replicated, can at least offer on-site lessons.

REFERENCES

- Akerman, Nordal, ed. (1990). *Maintaining a Satisfactory Environment: An Agenda for International Policy*. Boulder, Colorado: Westview Press.
- Chan, Kenneth S. (1991). "Country Size and the Provision of International Public Goods," Department of Economics and Statistics, Staff Seminar Paper, No. 2, 1991/92, National University of Singapore.
- Chua Beng Huat (1991). "Planning and Built Environment," chapter in Low and Quah, eds, *Public Policies in Singapore: A Decade of Changes: 1980-1990*. Singapore: Times Academic Press, forthcoming.
- Clark, C. (1976). *Mathematical Bioeconomics*. New York: John Wiley.
- Government of Singapore (1990). *The Next Lap*.
- Kindleberger, Charles P. (1986). "International Public Goods Without International Government," *American Economic Review*, March, pp. 1-13.
- Low, Linda and Quah, Esuton, eds (1991). *Public Policies in Singapore: A Decade of Changes: 1980-1990*. Singapore: Times Academic Press, forthcoming.
- MacAndrews, Colin and Chia Lin Sein (1979). *Developing Economies and the Environment: The Southeast Asian Experience*. Singapore: McGraw-Hill International Book Co.
- Mathews, Jessica Tuchman, ed. (1991). *Preserving the Global Environment: The Challenge of Shared Leadership*. New York: W.W. Norton & Co.
- Nash, Chris and Bowers, John (1988). "Alternative Approaches to the Evaluation of Environmental Resources," in Turner, ed., *Sustainable Environmental Management: Prices and Practices*. Boulder, Colorado: Westview Press, pp. 118-142.
- Norgaard, R. (1984). "Corevolutionary Development Potential," *Land Economics*, Vol. 60, No. 2.
- Rosen, S. (1974). "Hedonic Prices and Implicit Markets," *Journal of Political Economy*, Vol. 82.
- Singapore Science Council (1980). *Environmental Protection in Singapore: A Handbook*. Singapore: Science Council.
- Turner, R. Kerry, ed. (1988). *Sustainable Environmental Management: Prices and Practices*. Boulder, Colorado: Westview Press.

ENDNOTES

1. In contrast, Japanese MNCs like Tayama Chemical and Nihon Kagaku relocated their plants to South Korea, Asahi Glass has caused water pollution for its mercury-cell chlorine plant in Thailand, and Kawasaki Steel moved its plant and blast furnace from Chiba in Japan to Mindanao in the Philippines.
2. In 1990, built-up area took up 49.2 percent of total land, followed by others, 42.1 percent (comprising inland water, open spaces, public gardens, cemeteries, non-built up military establishments, quarries, rubber and coconut plantations).
3. This Parks and Recreation Division was the amalgamation of the Parks and Trees Division which was formed in 1968 and the Botanic Gardens.
4. The Concept Plan was announced and displayed on 12 September 1991 while the Strategic Economic Plan was unveiled in a National Business Forum on 14 October 1991. See also Government of Singapore 1990.
5. Of the two opposition seats gained in 1984, one was subsequently lost when the opposition Member of Parliament was disqualified from his seat after being charged with misdemeanours with party funds.
6. In 1990, Singapore's official reserves stand at S\$48.5 billion.
7. The Medisave is a special account in the individual's Central Provident Fund (CPF) account which is a social security mechanism. From the Medisave, the individual can pay for hospitalisation fees and certain approved medical charges for himself and three nominated immediate members of his family.

Sustainable Economic Growth

IMPLICATIONS FOR GOVERNANCE IN MALAYSIA AND THE ASIA-PACIFIC REGION

*Wan Portiah Hamzah**

The world is today challenged by a global crisis that it has never faced before; a challenge that transcends political, national and social barriers and may affect and threaten the common future of all life-forms. Environmental issues ride high on the political agenda, affecting many governments who have to face their "environmental sins". For more than two decades there has been growing awareness of environmental risks associated with certain aspects of economic growth. A clear message has now emerged that the enormous economic expansion initiated after the Second World War cannot continue for ever. It is now realised that development, disarmament and environmental protection are inter-related issues. The Brandt Commission on International Development Issues (1972), the Palme Commission on Disarmament and Security Issues (1982) and the Brundtland Commission on Environment and Development (1987) were aimed at finding a new vision for the future of mankind (Commonwealth Secretariat, 1990).

The reports of these three commissions spanned the 1970s and 1980s — decades which experienced unprecedented changes. The crumbling of the Berlin Wall and the unification of Germany will impact on economic as well as security dimensions; desire for political, economic and social independence led to the liquidation of old ideologies in Eastern Europe, reshaping the political map of the region of which the economic effects have yet to be felt, the end of the Gulf War reaffirmed the role of the United Nations in preserving international order and perhaps the return to and strengthening of multilateralism.

It was also a period marked with some of the most awful environmental disasters. The Bhopal tragedy was the world's largest industrial disaster; the Chernobyl explosion was by far the worst nuclear-reactor accident; then, in 1989, there was the *Exxon Valdez* accident, the United States' worst tanker spill, costing US\$2 billion in clean-up operations; and, later, the Gulf War precipitated catastrophic oil spills and fires in the Middle East. Developments during the coming decades will continue to be crucial and the concept of sustainable development will call for drastic changes and readjustments with respect to global social ethics, international cooperation, world trade and economics.

Reduced political tensions should facilitate international cooperation, promote investments, encourage reallocation of military-oriented investments to more productive civilian uses and nurture the concept of collective world gover-

nance. There will be a need for the development of global strategies not only to arrest current environmental degradation but also to improve and protect the environment. It is well-recognised that environmental degradation undermines the economic development process. Commitment and cooperation of the international community and all national governments will play an important role in developing innovative measures to add a sustainability dimension to the economic development concept. However, the approach to managing natural resources and the environment should not be perceived in terms of restraints on development. International conventions and protocols should result in amicable solutions, not only supporting sustainable development but also sensitive to the developmental needs of developing countries.

Many environmental risks stem from economic activities concentrated in industrial countries but such risks cross national boundaries and are shared by all countries. It is unfortunate that developed countries seem intent on laying the blame for the world's environmental problems on developing countries. The finger-pointing stage is not productive nor conducive to international cooperation, and multilateralism should not be characterised by domination nor dictation.

Pollution of the air and water, disposal and trans-boundary movement of hazardous and toxic chemicals, nuclear testing, over-exploitation of natural resources, persistent poverty, unsuitable land-use patterns, desertification, extensive deforestation and loss of biological diversity are issues that can no longer be ignored. The impacts of socio-economic development are increasingly evident. Excessive consumption of fossil fuels has resulted in emission of substantial amounts of greenhouse gases. This greenhouse effect poses the threat of climate change possibly resulting in a rise in sea-level which threatens to submerge many low-lying countries and to impact adversely on the productivity of terrestrial and marine ecosystems. The breakdown of stratospheric ozone as a result of increasing release of chemicals will bring harmful effects not only to human beings but also on other animal and plant species. Acid rain will further damage aquatic and marine life, diminish terrestrial productivity, accelerate deterioration of buildings and contribute to human health hazards. New technologies will have both beneficial and deleterious environmental effects but information on their risks has yet to be studied in detail.

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Many environmental risks stem from economic activities concentrated in industrial countries but such risks cross national boundaries and are shared by all countries. It is unfortunate that developed countries seem intent on laying the blame for the world's environmental problems on developing countries. The finger-pointing stage is not productive nor conducive to international cooperation, and multilateralism should not be characterised by domination nor dictation. As developed countries are now grappling with the unwelcome responsibility of environmental degradation due to their rapid industrialisation programs, developing countries, often faced with hindrances in international trade in the form of subsidies, quotas, tariff and non-tariff barriers, have to stretch their limited financial and technical resources to revive economic growth, to alleviate their debt-servicing burden, and to tackle overdue environmental problems arising from poverty and uneven distribution of population pressures.

Poverty, debt, trade and the environment cannot be isolated from one another. The Brundtland Report states that "poverty is a major cause and effect of global environmental problems", but the link between poverty and environmental degradation has not been readily accepted by industrial societies. Generalisations are difficult, but it appears that most of the environmental problems in *developing countries* tend to be both a cause and an effect of poverty. It should be clear that this happens simply because it is beyond the capacity of the poor to improve their lot. Will improved international relations, understanding and cooperation raise the poverty curtain between the North and South?

International initiatives have to address many issues such as environmental refugees, reconciliation of national interests and international concerns and technology cooperation. Such initiatives must take into consideration the overall balance of world development, debt crises and flow of development finance. Only then will these initiatives have a far-reaching effect helping to produce trade, capital and technology flows that are more equitable and well balanced with the environment around the world. It is important that an overall assessment of the various international environmental initiatives/debates be carried out. Equally important, developing countries should be prepared to meet the environmental challenges confronting them and, along with the developed countries, determine the agenda on the environment.

DEVELOPMENT TRENDS IN MALAYSIA

Before proceeding to tackle the issue of environmental integrity, a brief account of the historical environment that has influenced and continues to influence Malaysia's development planning is called for. Malaya's early economy was based on production and export of raw materials, of which rubber and tin were by far the most important. The colonial capitalist system exploited these natural resources bringing little value-added economic activity into the country. To expedite economic exploitation, importation of Indian and Chinese workers was encouraged (Wang Gangwu, 1964). Very soon racial differences coincided with differences in wealth and economic activity. In addition to regional and ethnic income disparities, Malaya also faced many other problems such as rural poverty, concentration of industries in a few metropolitan areas and persistent disease hazards.

Since independence, the Malaysian economy has been transformed from one overly dependent on primary commodities into a more diversified and international economy. Real GDP growth averaged 6.7 percent per annum during the 1971–1990 period despite the effects of a very severe recession in the mid-1980s (The Second Outline Perspective Plan (OPP2) 1991). During the 1980s, the manufacturing sector recorded the most rapid increase, overtaking agriculture in 1987 and becoming the largest contributor to GDP (Asian Development Outlook 1990). With economic expansion, the supply of labour increased approximately 3.2 percent and unemployment rate has been reduced marginally from 8.1 percent in 1988 to 7.9 percent in 1990. Absolute poverty is diminishing and inequalities in income are also narrowing. The incidence of poverty declined from 49.3 percent in 1970 to 15 percent by the end of 1990 (OPP2, 1991). A more important issue to address will be relative poverty. Reducing relative poverty does not only mean raising productivity and real incomes but also improving the access of lower income groups in the less developed states to better facilities and income opportunities.

Long-term development planning began in the early 1970s with the completion of the Outline Perspective Plan (OPP1) 1971–1990. Four plans form part of OPP1 — the Second Malaysia Plan 1971–1975, Third Malaysia Plan 1976–1980, Fourth Malaysia Plan 1981–1985 and Fifth Malaysia Plan 1986–1990. Each plan has its own mid-term review, making necessary adjustments to original targets and economic policies. The New Economic Policy (NEP), spanning a 20-year period from 1970–1990, was aimed at promoting national unity through the two-pronged objectives of eradicating poverty irrespective of race and restructuring society to correct the identification of races with economic functions. The National Development Policy (NDP), replacing the NEP, took effect in 1990 with the intent of accelerating the development process. The overall thrust of the NDP is balanced development and while the general policy environment is supportive of economic recovery some uncertainties still remain. It is envisaged that the opportunities for growth will result in a wider distribution of benefits across the nation. This, together with preservation of the environment and maintenance of a stable socio-political climate, will contribute towards the sustainability of national development.

The 1990s will further witness the maturation of Malaysia from a developing country towards the status of a fully developed country. As defined by the Hon. Prime Minister:

We must be fully developed in terms of national unity and social cohesion, in terms of our economy, in terms of social justice, political stability, system of government, quality of life, social and spiritual values, national pride and confidence . . . We should be a developed country in our own mould.

He further emphasises that while developing

. . . we must also ensure that our valuable natural resources are not wasted. Our land must remain productive and fertile, our atmosphere clear and clean, our water unpolluted, our forest resources capable of regeneration, able to yield the needs of our national development. The beauty of our land must not be desecrated — for its own sake and for our economic advancement. (*Malaysia: The Way Forward*)

ENVIRONMENTAL MANAGEMENT AND ECONOMIC GROWTH

In the early days, preservation of the environment was a peripheral consideration although some attention was paid to sound environmental practice. For example, the colonial administration produced guidelines for mining and terracing practices for rubber planting. After independence, the focus of the early development process was on socio-economic progress without much explicit attention to environmental issues. Malaysia's initial efforts in the environmental field were essentially to control pollution problems caused by the various industries. Thus, the first steps represented a curative approach towards tackling immediate problems caused by the indiscriminate discharges of agro-based industries. The *Environmental Quality Act* (EQA) was passed by Parliament in 1974. However, the EQA was enacted not only for the purpose of preventing environmental deterioration but also to enhance the quality of the environment. Warford (1989) mentioned that by concentrating on curative, piecemeal solutions rather than on underlying causes, the traditional approach fails to confront the real issues, which have much more to do with the way society works than with the technical aspects of natural resource degradation.

In the 1980s further efforts were made to institutionalise a preventive approach to environmental management. Broad environmental policies, programs and strategies had already been identified in the Third Malaysia Plan (1976–1980). However, the elements of sustainable development concepts were only introduced into the Fifth Plan (1985–1990) and reinforced in the Sixth Plan (1991–1995). Programs and strategies were formulated and implemented to ensure that these resources were managed and would be managed on a sustainable basis.

There have been weaknesses in the environmental planning system in Malaysia as in other developing and developed countries. Institutional overlaps, bureaucratic constraints and inefficiencies, political and financial vested interests, myopic views of decision-makers and lack of resources and expertise are some of the factors contributing to the failure. A more important factor is, however, the sheer difficulty of perceiving the linkages that operate among natural resource systems and problems of trade-offs in dealing with the paradoxes and dilemmas of apparently conflicting interests (Myers, 1989).

Over the years rural development and agricultural schemes, industrial development, and urban expansion have adversely affected the environment. By the early 1980s clear signs of significant environmental deterioration have begun to emerge. The problems call for reassessment of the nature of economic growth by addressing the relationship between macro-economic planning and sectoral analysis, the handling of externalities, and the welfare of vulnerable groups and future generations. Decision-makers have relied too much on GDP as a criterion of national well-being and being preoccupied with short-term measures, have wrongly construed the growth imperative. The following section will highlight some sectors of the economy and existing environmental policies before addressing the future plans for economic-cum-environmental planning.

Forestry sector

The forestry sector has always contributed significantly to the socio-economic development of Malaysia. The total land area under natural forest is approximately 20.10 million ha (60.9 percent of total land area). Another 4.19 million ha have been planted with tree crops to nearly 74 percent of total land area. Forestry is a land matter falling under state jurisdiction, and thus state authorities can increase their revenue by opening up more forest areas for logging and development projects than the annual cut prescribed by the Federal Forestry Department. States have also been slow in gazetted forest areas to be demarcated as Permanent Forest Estate (PFE) under the *National Forestry Act* 1984. Demand for timber and conversion of forested areas to agricultural use over the last few decades have thus adversely affected the environment. Some of the serious environmental problems are massive erosion and loss of soil in the uplands, loss of wildlife due to destruction of habitats, degradation of watershed through increased surface run-off, flash floods due to siltation of waterways, damages to water quality and the aquatic ecosystem and damages to agricultural crops in the lowland as a result of increased incidence of floods.

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Malaysia has embarked on policies and plans to manage the forests both for socio-economic purposes as well as for stability in climate, ecology and environment. How well Malaysia will perform will depend on the effectiveness of relevant agencies implementing these policies.

Fisheries sector

Fisheries play an important role in the Malaysian economy, contributing approximately 3–5 percent of GDP (MIER, 1990). The in-shore fishing zone (5 nautical miles from the shore) with its high density of fishermen has been the area of intense competition and conflicts in Malaysian fisheries. Most marine fish landings come from the coastal zone or Zone B (between 5–12 nautical miles from the shoreline) but landings of pelagic and demersal fish have declined over the years. However, there is potential in off-shore fisheries, mainly in the South China Sea area off the east coast of peninsular Malaysia, Sarawak and Sabah. Inland fishery, compared to marine fishery, is small and has declined owing to pollution and indiscriminate killing using poisons and explosives. Aqua/mariculture activity is catching up in Malaysia but is faced with pollution and poor management problems.

The central problem facing the fishing industry is that of over-fishing, resulting in excess fishermen and over-capitalisation in the in-shore and coastal fisheries. In addition, extensive illegal fishing and encroachment has led to massive conflicts. Hence, there is an urgent need to review the industry, improve enforcement of regulations and legislation, develop management measures and upgrade the quality of fisheries statistics.

Rural development

An area of concern has been eradication of widespread poverty among rural peasantry. The Government has strongly pursued rural development by opening up unalienated government lands for human settlement and initiating integrated land development projects. Federal Land Development Authority (FELDA) projects have generally met with success in meeting social and economic objectives. Income and living standards have improved and stability of the farming community was assured with the procurement of legal title to farm holding. Under the land capability classification (LCC) exercise of the 1970s, priority of land use is given to mining over agriculture, agriculture over forestry and production forestry over conservation. The priority accorded to agriculture over forestry is based purely on the financial consideration of a much shorter period for return on investment and the financial advantages of tree crop agriculture over forestry. This approach, however, does not take into account the externalities involved and the true total economic and non-economic benefits of the forests. The adoption of the National Forestry Policy in 1978 and the *National Forestry Act* 1984 has, however, succeeded in arresting the decline and preserving most of the remaining forested areas.

Urbanisation

Urban development has become a priority issue as Malaysia seeks to avoid the problems of urban slums, poverty and a degraded environment stemming from population pressure and congestion. A strategy of developing growth centres has been pursued with secondary and tertiary economic activities developed to provide income earning opportunities. In the urban centres, management responsibilities fall under the 1976 *Local Government Act* and the *Town and Country Planning Act*. Solid waste management is an important urban service which consumes a large portion of local revenue. Expenditures on this service will continue to increase in view of further economic growth, increasing population, and complexity of waste problems. Inadequate water supply, pollution and poor waste disposal mechanisms are some of the major problems posing serious public health hazards, degradation of environmental aesthetics and delicate ecosystems, and lowering of property values in the vicinity of polluted areas. Industrial areas which are part and parcel of the urban conglomeration also generate a significant amount of pollutants.

Currently, property taxes and other local authority licence fees are levied at the municipal level. Part of the charges cover the cost of waste treatment, transportation and disposal. A greater commitment, coordination and concerted effort is required at the federal, state and local levels to address the issue of waste management and provision of safe water supplies.

Other sectors

The agriculture sector which accounts for 30 to 32 percent of the GNP is associated with problems of soil erosion and pollution of waterways due to widespread use of pesticides. Major agro-based industries concerned with processing of rubber and palm oil have been identified as the main contributors to environmental pollution in Malaysia. Effluent treatment systems have been developed to overcome the problems. In addition, charging of high effluent-related fees as well as quantity incentive by way of waiver of fees for research has expedited research programs.

The tourist industry is one of the fastest growing industries in Malaysia and is an important foreign exchange earner. It does, however, pose new threats to the environment. Development of hill, beach and island resorts requires careful planning, effective monitoring and good integrated management approach.

Industry, energy and transport sectors have affected the quality of the environment. Not all aspects of the environment are adequately covered by the *EQA of 1974* or the *Environmental Quality (Amendment) Act 1985*. Within the national policy framework, other sectoral policies also have a significant bearing on environmental conditions in Malaysia.

Currently, there are some existing mechanisms to encourage sustainable development. For example, although no provisions exist which provide an incentive for polluters to implement effective wastewater management facilities, the polluter-pays-principle does prevail. Here the polluter is confronted with charges imposed by the local authority for implementing and operating centralised wastewater management strategies. Environmental charges are applied on air pollution and disposal of liquid waste. Such charges are levied at the national level by the Department of Environment if minimum standards are not being met. Failure to comply within a specific period can involve court action, with ultimate closure of the property. Tax incentives for environmental protection have also been initiated recently. These incentives include duty free importation of pollution control equipment and grants to carry out environmental rehabilitation works.

One of the major instruments employed in project development planning is the mandatory requirement for the conduct of environmental impact assessment (EIA); in particular, on major development projects as prescribed in the *Environmental Quality (Environmental Impact Assessment) Order of 1987*. However, EIA procedures are not without problems, a major one being that of quantification. Quantified evaluations are highly dependent on the skills, prejudices and perceptions of the "experts". In addition, such assessment requires large sets of data and long time-series and very often these resources are not available. Expertise and timing are other factors to be considered, otherwise EIA can be seen as paying lip service to environmental problems without solving them.

FUTURE TRENDS FOR ECONOMIC-CUM-ENVIRONMENTAL PLANNING

Malaysia's management style with respect to the environment has taken a more pro-active stance. In its Langkawi

Declaration, the Government made a clear statement on the need to preserve the environment. Now this statement has to be translated into policies, legislation and enforcement measures to tackle the existing problems and to prevent others from occurring. Currently, as already mentioned, there are weaknesses in the planning mechanism and in the implementation of the legislation. There is an urgent need to ensure that future economic growth adequately addresses the environmental parameters.

It is increasingly being recognised that conventional measures of national income such as GDP give misleadingly favourable estimates of economic well-being or economic growth (Vincent, 1991). Depreciation of environmental capital has not been recorded in the conventional economic cost-benefit analyses. Malaysia is now studying the need to account for natural resources when formulating alternative development strategies. There is, of course, criticism of the methodology of national resource accounting (NRA), but on the whole NRA does provide valuable information to policy-makers. The process is complex and raw data sets should be available. But even if data is limited, the system should be developed, and further refined at a later stage.

Malaysia is also looking into the use of marginal opportunity cost (MOC) to measure the physical effects of resource depletion in economic terms. This is the cost society has to bear when depleting a natural resource. The process is not easy, especially when making trade-offs regarding impacts that cannot be evaluated in monetary terms, such as impact on vulnerable groups and welfare of future generations. There is increasing interest in use of economic instruments for environmental management. Instruments such as the deposit-refund systems, where a surcharge is laid on the price of potentially polluting products, and market creation, where actors can buy or sell their "pollution rights", have been discussed.

Inadequacy of data for effective economic and environmental planning has been frustrating. This problem is now being addressed and it is envisaged that recent developments in geographic information system (GIS) will help to assess current national resource endowments and to project future endowments under the various scenarios. Application of remote sensing techniques combined with the traditional methods of data collection and incorporating other socio-economic data could perhaps help in the macro-economic and resource planning process.

The report of the state of the environment focuses on the quality of air, river water as well as coastal and marine waters. Although there have been considerable efforts to establish a more reliable picture of the environment, incorporating appropriate environmental standards and procedures, there is, however, an urgent need to review these standards and procedures on a regular basis to reflect the changing circumstances. In addition to the above weakness, the present system does not incorporate a "post mortem analysis". Such an analysis would calculate the cost-benefit implications of different options and, on the basis of this analysis, lead to new updated checklists and guidelines so that future projects can be carried out on a sustainable basis (MIER, 1990).

Over the years environment-related policies, institutions, and the statutory framework have evolved to address these concerns, and positive moves have been initiated to alleviate

the excesses of environmental degradation that have occurred in the name of progress. Programs and preventive measures have achieved a certain degree of success. What is also needed in Malaysia are skills and appropriate techniques, as well as commitment and better coordination.

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GOVERNMENT MACHINERY AND PLANNING PROCESS

The political system of Malaya has served as a framework for contemporary Malaysia. The current system is a version of the British parliamentary model, with a legislature composed of two houses, one directly elected, a cabinet responsible to that house, a neutral civil service and an independent judiciary. Malaysian public administration still shows many traces of its British origins such as secretiveness (Wan Portiah, 1988).

Parliament is not the sole repository of legislative power in the federation, for the legislative assemblies of the constituent states composing the federation are also empowered to make laws for the respective states. The Constitution provides a list of federal powers, a state list and a concurrent list. Whenever inconsistency arises, federal law prevails. Under the federal and state lists, the power to enact laws is very clear, but under the concurrent list laws could either be made by Parliament or state legislative assemblies. Members of Parliament are free to pose questions to ministers and to state their views in debates; but, on the whole, the executive government has more direct control over legislation and policy-making.

The planning machinery is quite centralised, with the Economic Planning Unit (EPU) taking the lead role in preparation of 5-year development plans. This work is performed in collaboration with other agencies of government, at both federal and state levels, through Inter-Agency Planning Groups (IAPG) and Technical Working Groups (TWG). The 5-year plan is later submitted and further deliberated at the National Development Planning Committee (NDPC), with EPU acting as the secretariat. From here the plan is submitted to the National Planning Council (NPC), comprising a selected number of ministers, with the Prime Minister as chairman. Cabinet will then consider and approve the plan which is later tabled in Parliament for its approval.

Apart from EPU, the Implementation and Coordination Unit (ICU) and the Malaysian Administrative Modernization and Manpower Unit (MAMPU) oversee and coordinate the policies of the Government and their implementation. The various ministries and their large number of agencies also have a responsibility to coordinate and consolidate their plans. At the state level various institutions and agencies are again involved in development planning. Since a number of government departments and agencies at national, state and local levels are involved, directly or indirectly, in preservation and protection of the environment, coordination is critical in view of overlapping interests and immediate objectives. There must also be greater awareness and concern over environmental issues and strengthening of technical capabilities in handling and incorporating environmental management within the planning machinery at all levels.

In addition to the above, the ethical dimension also needs to be incorporated into all sectors. There is, in certain sectors, too much concern for maximising profits and too little for the environmental effects of economic activity. Public accountability by both the public and private sectors is an important element towards sustainable development.

Although several agencies are involved in preservation and protection of the environment, the Ministry of Science, Technology and the Environment is the main body that controls the legislation in this aspect, including the incorporation of environmental considerations in development planning. The Environmental Quality Council (EQC), established under Section 4(1) of the *Environmental Quality Act* (EQA) 1974, advises the minister on matters pertaining to the Act. The EQC also provides guidance to the Department of Environment (DOE) in formulating policies and strategies related to environmental protection and management. While the efforts of DOE are commendable, its role is often reduced to one which is advisory only, with final decisions left to the relevant states and agencies.

For a country like Malaysia, government intervention is a necessity, but, so far, intervention in the economy has been minimal (MIER, 1989). Policies can help to enhance an "environmentally-friendly attitude". However, policy interventions such as agricultural pricing policy, trade policy and direct subsidies are very complex and depend on behavioral issues and on the prospect for changing behaviour (Warford, 1989).

Equally important is public participation, but this is only possible when the public has been educated on the importance of a sound environment. Public apathy can be illustrated by typical consumer patterns of purchasing goods without considering whether they are produced from non-renewable resources, or are energy intensive, or are potential waste pollutants. This apathy partly stems from ignorance and partly from lack of effective price and other incentives to encourage environmentally-sensitive consumer behaviour. Public awareness is, however, rising and the press and

electronic media have stepped up coverage on the more conspicuous environmental problems. Public awareness needs to be complemented by greater public participation and commitment.

In addition to the above, the ethical dimension also needs to be incorporated into all sectors. There is, in certain sectors, too much concern for maximising profits and too little for the environmental effects of economic activity. Public accountability by both the public and private sectors is an important element towards sustainable development. In Malaysia, the role of non-governmental organisations as "watch-dogs" has been constructive and has provided a mechanism for feedback to the government. The challenge now is better understanding, mutual respect and greater cooperation.

SUPRA-NATIONAL GOVERNANCE MECHANISMS

The concept of development was raised earlier. What should Third World countries aim for? Industrialised countries which have poisoned their water courses, fouled the air, wasted their resources, and which are afflicted by high rates of crime and suicides are termed "developed" on account of their elitist consumerism, military power and technological superiority. If Third World countries want a different pattern of civilisation, what measures can they adopt?

There is no magic formula for sustainable development. Existing international treaties/conventions are hardly effective in view of the rapid environmental degradation. Environmental damage can only be avoided by means of national and international understanding and cooperation. Apart from addressing overall balance of world development, particularly in solving the debt crises, and the need to increase the flow of development finance and trade facilities, there is an urgent need to review concepts regarding the potentials and opportunities in technology cooperation. Environmentally benign technologies should not be treated merely as a good business opportunity. Having said that, transaction of such technology should be clearly understood and be made fair for both parties.

Global issues should be addressed with special care taking into consideration the differences in levels of development of world communities. Standards of environmental quality adopted by one country may be impossible for others. A life-style very much taken for granted by one community may be unacceptable to others who are still struggling with pressing issues of poverty. Global collective governance should be viewed in relation to the state of development and the population level, and must respect the aspirations of the poor and impoverished. Targets alone are insufficient; incentives must be used to promote strategies such as afforestation and conservation.

Developing countries need to cooperate with each other to study the scientific, economic, commercial and social dimensions of the preservation and exploitation of natural resources. The protection of bio-diversity in developing countries, for example, should be recognised and compensated. In this field, developing countries must take into account the results on trade related aspects of intellectual property.

An interim measure to set up a "Global Environment Trust Fund" has been proposed. The Fund could be financed by levies imposed on the emissions of greenhouse gases, the production of ozone-depleting substances, or sales tax on imports of natural products that are not produced on sustainable basis. This Fund could later be used for environmentally-sound programs. However, this novel idea has yet to address the question of management.

CONCLUDING REMARKS

The challenge of the Third World is a challenge to the leadership of the Third World countries. Without their will to develop, outside assistance is of little use. In these countries, the situation is complicated by the diverse nature of the culture, society and economy. Hence, development based on programs and policies externally conceived and externally imposed will not work. The concept of sustainable development is not about reviewing environmental policy but about reviewing the process of development itself. For developing countries, the process needs to address the issues of poverty incorporating meeting basic needs and embracing the need for reserves for future generations. Third World countries must work together to determine how the environment should be managed and not leave it to those who have the power to decide how it is managed.

REFERENCES

Asian Development Bank, 1991. *Asian Development Outlook 1991*, Manila.

- Commonwealth Heads of Government, 1989. The Langkawi Declaration on the Environment, Kuala Lumpur.
- Commonwealth Secretariat, 1990. *Common Index and Glossary to Brandt, Palme and Brundtland Reports*, London.
- Government of Malaysia, 1991. *The Second Outline Perspective Plan 1991*, Government Printers, Kuala Lumpur.
- Government of Malaysia, 1976. *Third Malaysia Plan 1976-1980*, Government Printers, Kuala Lumpur.
- Government of Malaysia, 1986. *Fifth Malaysia Plan 1986-1990*, Government Printers, Kuala Lumpur.
- Government of Malaysia, 1991. *Sixth Malaysia Plan 1991-1995*, Government Printers, Kuala Lumpur.
- Malaysia. *The Way Forward*. Working Paper presented by Y.A.B. Dato' Seri Dr Mahathir Mohamad, Prime Minister of Malaysia at the Inaugural Meeting of the Malaysian Business Council, February 28, 1991, Kuala Lumpur.
- Malaysian Business*, October 1-15, 1990.
- Malaysian Institute of Economic Research, 1990. *Economic Policies for Sustainable Development: Implementing the Brundtland Commission in Malaysia*, Kuala Lumpur.
- Myers, Norman 1989. "The Environmental Basis of Sustainable Development," in Schramm, G. and Warford, J. (eds) *Environmental Management and Economic Development*, Washington, DC.
- Newsweek*, May 12, 1986.
- Time*, May 16, 1986.
- Wan Portiah Wan Hamzah, 1988. *The Role of Organisational Patterns and Science and Technology Management in Malaysia*. MSc. Thesis.
- Vincent, Jeffrey, 1991. "The Mechanics and Problems of Establishing a National Resource Accounting System". Presented at ISIS Forum on Environmental Issues, Kuala Lumpur, September 5.
- Wang Gangwu (ed.), 1964. *Malaysia: A Survey*, London.
- Warford, Jeremy 1989: "Environmental Management and Economic Policy in Developing Countries," in Schramm, G. and Warford, J. (eds), *Environmental Management and Economic Development*, Washington, DC.
- World Commission Environment and Development (WECD) 1987. *Our Common Future*, OUP, New York. (The Brundtland Report)

Sustainable Development Initiatives in Thailand

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ECONOMIC DEVELOPMENT PROFILES/ FUTURE TRENDS

Thailand attained economic growth rates of 11.9 and 10.46 percent in 1988 and 1989 respectively, performance which is outstanding compared to OECD and ASEAN countries. But, as a result of accelerating economic growth, natural resources have been relied on to an extent that the rates of their utilisation exceed the carrying capacity of the natural environment.

As a result, balance in all facets of development will be a major emphasis of Thailand's future economic growth. In

this respect, government will aim at creating sustainable economic growth and a fair distribution of income. Importance will be given to the development of human resources and the quality of life to achieve self-reliance, and the conservation of environmental and natural resources.

ENVIRONMENTAL PERSPECTIVES/ STRATEGY

Natural resources profiles

Forestry: Deforestation in Thailand has been severe. Table 1 makes it clear that deforestation has taken place quite rapidly throughout Thailand, but the rates differ among the five regions of the country, with the Northeast being the most critically affected area. Deforestation results from complex human activities, but at least four major causes can be identified.

- Rapid population growth;

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- Traditional and unproductive agricultural production techniques;
- Illegal logging; and
- Destruction of forest by hill tribes.

Clear-cutting of mangroves is also becoming increasingly severe, and is resulting in a serious destruction of the coastal ecology. Rapid destruction of mangroves for promotion of shrimp farms has occurred in various areas of the Upper Gulf and dumping of solid wastes in mangrove areas is also becoming a serious problem although mostly in the deteriorated mangroves.

Coral reefs: Tourism has resulted in destruction of coral reefs, particularly from souvenir collecting, boat anchoring and trampling. Solid waste dumping also plays a major role in the destruction of coral.

Fisheries: There is a high potential yield of demersal and pelagic fisheries in the Gulf of Thailand. However, the catch per unit effort (CPUE) has decreased drastically from about 300 kg/hour in 1961 to 50 kg/hour in 1977. This trend is expected to persist. This severe decline and the formation of exclusive economic zones by most surrounding countries has caused Thailand to seek joint ventures throughout the Indo-Pacific region.

Environmental pollution

Air and noise pollution: Air pollutant emissions originate mainly from the burning of fuels such as petroleum products, lignite and coal. Transportation sources obviously have the greatest impact on air pollution, due to their dominant roles in fuel consumption, large emission factors (Table 2) and concentration in populated areas.

Noise pollution from transportation is a nuisance in Bangkok and, to a lesser degree, in other major cities. The main

Table 1: NATURAL FOREST AREAS IN VARIOUS REGIONS OF THAILAND (RAI)

Region	Total Land Area	Natural Forest Area (000's)						
		1961	1973	1976	1978	1982	1985	1988
North	106,028	72,672 (69%)	70,997 (67%)	63,954 (60%)	59,336 (56%)	54,848 (52%)	52,579 (50%)	50,251 (47%)
East	22,814	13,227 (58%)	9,398 (41%)	7,894 (35%)	6,898 (30%)	5,000 (22%)	4,994 (22%)	4,896 (21%)
North-East	105,534	44,315 (42%)	31,669 (30%)	25,934 (25%)	19,513 (18%)	16,179 (15%)	15,140 (14%)	14,308 (14%)
Central	42,124	22,288 (53%)	14,981 (36%)	13,641 (32%)	12,766 (30%)	11,573 (24%)	10,768 (26%)	10,778 (24%)
South	44,197	18,516 (42%)	11,522 (25%)	12,587 (28%)	11,002 (25%)	10,276 (23%)	9,678 (22%)	9,144 (21%)
Whole Country	320,697	171,018 (53%)	138,567 (43%)	124,011 (39%)	109,515 (34%)	97,875 (30%)	93,158 (29%)	89,877 (28%)

Notes: All data were derived from LANDSAT except for the 1961 data which came from aerial survey.
Values in parentheses are percentages of the total land area in each region.

Source: RFD, 1985a. p. 20-24.

Note: 1 hectare = 6.25 rai.

Table 2: EMISSION FACTORS FOR COMBUSTION SOURCES (KG/TON OF FUEL)

Sources	Type of Fuel	SPM	SO ₂	NO _x	HC	CO
Power plants	Fuel oil residue	1.04	69.6	13.2	0.13	?
	Natural gas	0.29	0.056	11.5	0.019	0.32
	Lignite	56	30	7	0.5	0.5
	Coal	1.2	13.3	9	0.15	0.5
Industrial and commercial furnaces	Diesel	2.13	20.1	7.5	0.41	0.59
	LPG	0.38	0.0068	2.6	0.65	0.35
	Fuel oil distillate	2.13	60.3	7.5	0.41	0.59
	Kerosene	3	3.4	2.3	0.4	0.25
	Natural gas	0.34	0.056	3.6	0.58	0.32
	Coal/lignite	56	30	3	0.5	1
Domestic furnaces	LPG	0.42	0.0068	1.8	0.17	0.44
	Fuel oil distillate	1.42	60.3	1.8	0.41	0.71
	Kerosene	3	3.4	2.3	0.4	0.25
	Bagasse	8	—	0.6	—	—
	Fuel wood	13.7	0.5	5	1	1
Vehicles	Gasoline	2.0	0.54	10.3	14.5	377
	Diesel	2.4	19	11	2.6	43.5
	LPG	0.03	—	0.52	0.28	1.7
Boats	Diesel	—	2.7	27	5.1	11

Sources: WHO, 1982 and USEPA, 1976.

source of noise is motor vehicles, particularly motorcycles. In addition, high-speed boats are a problem along the canals and rivers. Roadside surveys indicate a high level of noise, exceeding 85 dBA, most of the time.

Water pollution: Urbanisation and industrialisation are basic causes of Thailand's water quality problems, but population growth is even more fundamental. The rapid growth of Bangkok and the industrialisation of outlying areas are producing many signs of stress in terms of water quality, even well out into the Gulf of Thailand. But the most dramatic example of deteriorating water quality remains the Chao Phraya, the river which flows through the heart of Bangkok itself. Currently, only 100,000 people or a mere two percent of Bangkok's population are connected to the city's existing, limited sewers. The situation in Bangkok is repeated throughout the towns and cities of Thailand, albeit on a smaller scale. Cities like Chiang Mai, Khon Kaen, Khorat and Songkhla, all use a basic sanitation system based on cesspools and septic tanks. In the rural areas of Thailand, there are very few types of sanitation facilities of any type in use.

Development strategy

It was not until the Fourth National Economic and Social Development Plan (1977–1981) that the importance of environmental protection as a separate governmental field and endeavour was recognised. However, insufficient budgets were allocated for environmental protection in routine works or project development.

In the Fifth Plan (1982–1986), the formulation of an environmental management plan was carried out. However, in that plan each natural resource sector was planned and managed individually. There was a lack of integration and cooperation in the formation of comprehensive policy, measures and plan.

In the Sixth Plan (1987–1991), the direction and concepts of development were amended to integrate various sub-plans into one major natural resources and environmental development plan. Emphasis was placed on coordinating all economic and environmental development activities, so that local, public and private sectors could coordinate and support each other along the path towards a common goal.

The Sixth National Economic and Social Development Plan is, hence, the first plan which has pinpointed the objective of associating sound economic policies with the principle of sustainable development. Under this plan, a systematic approach to natural resources and environmental management, emphasising decentralised management toward provincial and local administration, was promoted. This emphasis was to bring about a sense of belonging, participation and public awareness toward the plan among local people, and to generate continuity of long-term development.

The development of human resources, improving quality of life, and protecting the environment and natural resources are the major objective of the Seventh National Economic and Social Development Plan. In order to achieve these objectives emphasis must be placed on balancing the quality and quantity of development, including social justice, leading to sustainable development of the country.

INTEGRATION/LINKAGE OF ECONOMY AND ENVIRONMENT

Songkhla Lake Basin Project

A logical approach to integrated economic/environmental management was first applied in Thailand in the Songkhla Lake Basin Project. The goal was to prepare a basin-wide development plan which would optimise resource use for long-term sustained development.

The objectives of the project are:

- To promote economic growth above the national average, without adverse environmental or natural resource effects;
- To develop natural resources to their optimum sustainable yield, with an equitable distribution of the associated benefits; and
- To integrate environmental protection into socio-economic and natural resource development plans, with environmental values conserved, and, where possible, enhanced.

Achievement of the socio-economic objectives will entail:

- An intensification and diversification of the primary sector and aquaculture activities;
- A vertical integration of economic activity to increase resource-based industries and employment;
- Industrialisation;
- Tourism development; and
- Infrastructural development.

Achievement of the natural resource objectives will entail:

- An improvement in agriculture yield;
- Giving poorer people access to the benefits of resource developments;
- Utilisation of land to optimum sustainable capability;
- Conservation and protection of resources; and
- Development of under-utilised resources, particularly those of the Songkhla Lake system.

Achievement of the environment objectives will entail:

- Establishing environmental standards;
- Controlling pollution at sources;
- Locating industries so that risks of pollution or hazardous wastes are minimised;
- Designating and protecting areas of high environmental significance; and
- Establishing local management systems and environmental impact assessment procedures.

This strategy calls for significant improvements to environmental management. It presents an affordable basis for future economic development and environmental management. The proposals are integrated into a Natural Resources Management Plan, a Socio-economic Development Plan, and an Environmental Management Plan and can be implemented within existing institutional frameworks, with the addition of a Coordination Centre, based in Changwat Soukhla. This Coordination Centre could serve the whole Lower South. The program is affordable within the levels of continued government spending in the Basin on a per-capita basis. It is estimated that private investment, at a level two to three times the government investment, is required. It is also recommended that the principle of "user pays" be applied, where appropriate, to the use of government services and facilities.

Eastern seaboard development

In 1981 the Royal Thai Government announced the Eastern Seaboard Development Program (ESDP) to the public. The main purpose of this program was to develop natural gas related industries at Map Ta Phut; light, labour-intensive industries at Laem Chabang; and infrastructural facilities for both areas. The ESDP is a long-range and large-scale program planned for implementation over the next 20 years. The government will support the industrial-based facilities including provision of the essential infrastructure such as ports, roads, railways, water, electricity, and telecommunications.

The major projects planned in the Eastern Seaboard are located in three of the seven provinces in the East Region, namely Chonburi, Rayong, and Chachoengsao. The program is focussed on two major target areas, Map Ta Phut and Laem Chabang, with the other development areas being Pattaya and Sattahip. Several feasibility study reports and master plans concerning the ESB Development Program have already been carried out by various agencies.

The initial effort on formulating a regional Environmental Management Plan for the ESB laid the ground work for the continuing ESB/REMP (Regional Environment Management Plan) Project.

The overall objective of the REMP project is to prepare a comprehensive environmental management plan for the Eastern Seaboard region to guide development in a way that optimal "economic-cum-environmental" development can be achieved. The planning efforts resulted in the preparation of a series of guidelines, including:

- (1) Regional Water Resource Management Plan
- (2) Coastal Resources Management Plan
- (3) Regional Air Quality Management Plan
- (4) Community Development Environmental Plan
- (5) Industrial Development Environmental Management Plan
- (6) Watershed, Forest, and Wildlife Management Plan, and
- (7) Pattaya Environmental Management Plan

One of the major accomplishments of the ESB Regional Environmental Management Action Plans project was to take advantage of the ESB project, with its many component sub-projects, in order to implement NEB's use of the EIA (Environmental Impact Assessment) process on a systematic full scale basis. The EIA process is the most powerful tool available to national environmental protection agencies for assisting them in achieving environmental protection. But to realise the potential of the EIA process in itself involves a difficult training process. The ESB project presented this opportunity and the NEB took advantage of it; for virtually every sub-project involved, a competent EIA has been prepared, meeting NEB requirements, with the findings utilised for incorporation into the project feasibility study.

Thailand Coastal Resources Management Project (CRMP)

Thailand's coastal areas, approximately 2,600 kilometres in length, are important maritime habitats and are productive for a variety of natural resources such as fisheries, beaches, coral reefs, and mangroves. These resources have sustained the country's economy; from the beautiful beaches that attract tourists and tourism investment in abundance, to the fishing activities that play a role as a foreign exchange earner. For years, expansion of economic activities based on natural resources has led to declining environmental quality. The variety and riches of the coastal resources has long led to competitive uses. Conflicts among interest groups, either government agencies or individuals, are steadily decreasing natural coastal and marine productivity and the beauty of the coast itself.

The goals of CRMP are:

- (1) to develop an overall national strategy and support policies for coastal resources management, and action plans for priority regions or problem areas;
- (2) to reduce conflicts in marine and coastal resources use, and solve specific resource management problems;
- (3) to strengthen Thai capabilities for coastal resources management and development.

The main project objectives are:

- (1) To assess existing use and conditions of coastal resources and to identify potential uses in the future.
- (2) To formulate national policies for coastal development and to develop guidelines for coastal resources management.
- (3) To establish national regulations to support coastal resources development and management.
- (4) To develop institutional capabilities to improve decision making and implementation of coastal resource management programs.
- (5) To organise data and technical information in a form that supports reasoned decision-making regarding environmentally sound coastal development.
- (6) To promote and encourage public awareness and support for coastal resources management programs.

- (7) To develop effective monitoring and implementation of coastal management programs and policies.
- (8) To demonstrate mechanisms for local management aiming to increase involvement of the private sector.
- (9) To increase sustainable economic usage of coastal resources, including fisheries and forestry resources, and tourism amenities.

To meet the project goals and objectives, two parallel study programs (current state of the coast and Phuket action plan) were carried out. A series of seminars and workshops were organised to convey ideas for resolving various issues or conflicting uses concerning coastal resources. A set of guidelines was adopted to develop the Phuket Action Plan. This action plan, together with the current state of the coastplan, Songkhla Lake Basin Planning Project and The Eastern Sea Board Project, was analysed and studied in detail so as to formulate National Coastal Resources Management Policies.

Existing Environmental Pollution Control/Program/Project

There are various continuing initiatives to control environmental pollution. In relation to water pollution these initiatives include: enforcement of domestic effluent standards; establishing livestock effluent standards; designing and constructing wastewater treatment plants around Jannawa, Bangkok; building a centre for the treatment and disposal of hazardous wastes around Bangphlee, Samutprakaru Province; developing a management plan of wastewater treatment plant for Bangkok and adjacent areas; engaging in a feasibility study of utilising Klongs in Bangkok areas as a wastewater treatment system; and supporting private sector investment in the areas of central wastewater treatment, hazardous waste management systems, and industrial estate.

Initiatives relating to solid waste include: construction of three transfer stations for solid waste collection (total 10,000 tons/day); utilisation of sanitary landfill management (10,000 tons/day) in two to three areas which are operated by the private sectors; and construction of an incinerator for the treatment of infectious wastes (300 tons/day), to be operated by the private sector.

The following changes have occurred in respect of air and noise pollution: revising section 67 of Motor Vehicle Act B.E. 2532 (1989) in order to affect small vehicles; setting up the effluent standards for smoke, noise and CO emitted from vehicles and standardising all the measurement methods of various agencies; setting up air quality monitoring stations with demonstration boards in Bangkok areas; improvement of fuel quality and content; limiting the number of polluting vehicles and encouraging the use of mass transit system; and a long-term plan for air and noise pollution campaign.

INSTITUTIONAL/LEGAL/BUDGET ASPECTS

Institutional

In 1975 the Thai Government promulgated the *Improvement and Conservation of National Environment Quality Act*

(NEQA/1975). Pursuant to this legislation the National Environment Board (NEB) was established, together with its executive arm, the Office of the National Environment Board (ONEB). The NEB is primarily in a role of advising, leading, and coordinating on matters of environmental protection. To "see to it" that the implementing agencies of government pay proper attention to environmental protection in planning, building and operating development projects.

In recent years, environmental problems have become more severe, due to the scattering of implementation agencies under different departments which have their own policy on both development and natural conservation. To manage natural resources and environmental protection effectively, there need to be:

- (1) a comprehensive systematic approach, ranging from policy formulation, to management plan, to an implementation plan; and
- (2) a "check-and-balance" system for both development and environment conservation.

In this regard, reorganisation of the whole structure of the national environmental and natural resource institutes/agencies is necessary. The main idea under consideration is to build the unity of environmental management. The ONEB should be the central institute charged with coordinating and integrating natural resources and environmental management and linking government, the private sector and the public. Furthermore, it should emphasise public participation and bottom-up management.

Regional environmental management system

The Thailand National Economic and Social Development Plan (NESDP) strives for increasing the development of resources for socio-economic benefit while minimising impacts on environmental amenities. One of the major goals of the 7th NESDP (1992–97) is to increase and distribute resources development, tourism, and well-being throughout the region. Environmental degradation could accompany this goal if appropriate mitigation measures are not well planned and implemented. Also, each region has its own unique problems, and to solve these problems effectively, establishment of a regional environmental office is urgently needed.

The Office of the National Environment Board recognised this urgent requirement and has proposed to Cabinet the establishment of four regional environment offices throughout the country. Their establishment was approved in October 1990. Since then a pilot, southern region environmental office has been established. The major tasks of this office are:

- (1) to coordinate with the provinces to prepare a provincial natural resources management plan;
- (2) to promote and campaign for public awareness on natural resources conservation and environmental protection;
- (3) to identify and monitor the environmental problems/changes/trends; and

- (4) to recommend and/or carry out appropriate research on natural resource/environmental degradation and prepare policy/measures to alleviate the problem.

The project aims to strengthen the ability of the Southern Region Environmental Office to cope with the problems of natural resources and environmental degradation in the 14 provinces of southern Thailand.

The experience of working with the NEQA/1978 suggests the need to strengthen this legislation in order to furnish NEB with a more solid basis for its operations. The revised law should provide for:

- (1) a strengthening of the environmental impact assessment requirements;

- (2) an authorisation for environmental officers to enforce the regulation of pollution control; and
- (3) to provide budgets for environmental quality development.

Budget

To prevent and solve environmental problems, government in the past had to pay many millions of baht. It was still not enough, however. The provision of adequate budgets for environment protection and control is a major problem. Hence the present government has established an "Environmental Quality Development Fund". The fund will make money available to local government, at a low interest rate, to address environmental problems in the areas of design/construction of wastewater treatment systems, solid waste disposal and so on.

Sustainable Development in Development Planning and Policy-making THE PHILIPPINE CASE

*Jose Antonio R. Tan III and Ponciano S. Intal, Jr**

Sustainable development has many definitions but central to them all is the idea that growth today should not impede or limit growth in the future. It is a mode of development that meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). Incorporating the goal of sustainable development in development plans is easier said than done, however. The Philippine experience demonstrates this.

The integration of strong linkages among environmental, economic, social, demographic and even cultural considerations in the decision-making process is essential to the formulation of programs for sustainable development. Environmental policy alone cannot address environmental issues nor can economic policy alone bring long-term economic upliftment. These considerations are highly intertwined and would lead to trade-offs if improperly handled. Furthermore, the policies need to be implementable and the structures, existing or proposed, capable of handling the

programs for sustainable development. Otherwise, the result is ineffective policy no matter how well formulated.

This article discusses the inclusion of environmental considerations in Philippine planning and decision-making. It presents an analytical framework for integrating environmental considerations in the decision-making process. It then reviews and analyses the Philippine development programs in the context of sustainable growth. The next section deals with the improvements needed to implement programs for sustainable development effectively. Discussion is then extended to incorporate the role of the international community in planning and implementing policies for sustainable development.

INTEGRATING ENVIRONMENTAL CONSIDERATIONS IN THE DECISION-MAKING PROCESS: AN ANALYTICAL FRAMEWORK

Sustainable development is highly dependent on the ability of the decision-making process to integrate environmental, economic and demographic considerations. The environment cannot be protected and conserved by environment management policy alone; likewise, growth is not sustainable without taking the environment into consideration. Environmental management without harmonisation with economic and demographic policies would be inefficient and costly. Similarly, economic policies that do not consider

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environmental consequences will engender resource depletion and environmental degradation. Such policies, even if successful in the short-term, will ultimately fail because of a lack of, or a serious deterioration to, the resource base.

A framework for understanding the linkage between policy making and the environment is presented in Figure 1. In economic planning and policy-making, policy instruments are directed either to the economy as a whole (macro-economic policies) or to a specific sector (sector-specific policies). The impact of government policies on the environment can be direct or indirect. Direct impact comes from policies whose principal objective is to affect the environment, for example, reforestation. Direct impact may also occur as an "externality" or by-product attributable to a policy. An example of such externality effect is the pollution levels associated with industrial location policies. Indirect impact, on the other hand, refers to environmental consequences of economic or structural changes attributable to the government policy, for example, monetary policy to control inflation, to relieve pressures of poverty.

Macro-economic policies and the environment

The impact on the environment of macro-economic policies such as monetary policy, exchange rate policy, government expenditures and taxation, is indirect. The link between such policies and the environment is their effect on productivity, output levels, poverty incidence and income distribution. The utilisation of the natural resource base and the protection of the environment, in turn, is determined by the magnitude of the incidence of poverty.

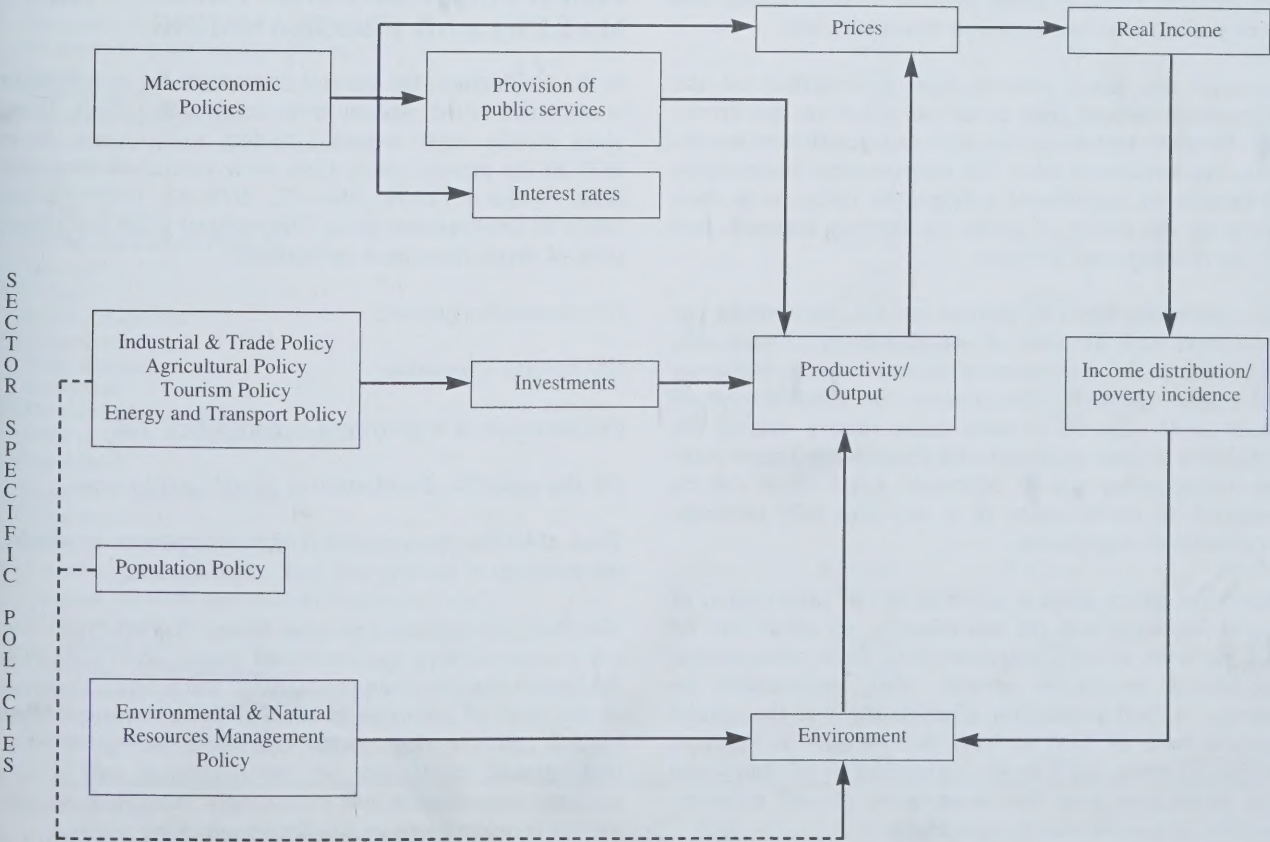
"Chronic" poverty or the inability to provide for alternatives that would raise income levels of low-income families, encourages the inefficient extraction of resources. Thus, for example, in the upland areas, the persisting low levels of income encourages swidden agriculture since such practice allows substantial returns within a very brief period. Thus, the fastest but most inefficient method of extracting returns is employed.

Environmental management without harmonisation with economic and demographic policies would be inefficient and costly. Similarly, economic policies that do not consider environmental consequences will engender resource depletion and environmental degradation. Such policies, even if successful in the short-term, will ultimately fail because of a lack of, or a serious deterioration to, the resource base.

Sector-specific policies and the environment

Sector-specific policies are policies formulated to promote the development of a certain sector in the economy such as agriculture, industry, natural resources, etc. These poli-

Figure 1:



cies can be dichotomised into the environmental and natural resource management policies and the non-environmental, sector-specific policies which do not directly concern the environment.

Environmental and natural resource management policies

Environmental and natural resource management policies are the most direct tools by which the government can influence and have an impact on the environment. These policies may take the form of direct intervention in the environment and natural resources sector, for example, reforestation and licensing. They may also be in the form of economic incentives to encourage concern for the environment and the efficient utilisation of natural resources such as the assignment of unambiguous property rights and the correct valuation of natural resources. These policies also deal with the assessment of environmental impacts, the correct assessment of pollution costs, and waste management.

Non-environmental, sector-specific policies

Non-environmental, sector-specific policies refer primarily to industrial, trade, agricultural, tourism, energy, and population policies. The impact of these policies on the environment is both direct and indirect. The direct impact is more of the externality type; for example, an agricultural policy that encourages the use of chemical pesticides to increase production levels which leads to water pollution and, hence, is harmful to the environment.

The indirect environmental impact of these sector-specific policies is through the poverty-income distribution channel. Any positive effect of these policies on productivity and poverty alleviation helps environmental concerns.

Industrial and trade policies exert externalities on the environment through their effects on industrial and investment location, sector-specific tariff and quantitative restrictions, and investment rules. The environmental externalities attributable to agricultural policies are reflected in their effects on the choice of crops, the farming methods, and pricing of inputs and produce.

The relationship between tourism and the environment has to do more with the issue of substitutability or trade-offs. This involves the conversion of natural resource-rich areas into tourist spots. It also involves the establishment of tourist spots adjacent to such areas, thereby raising the probability of their environmental degradation. Proper tourism-zoning policy should determine which areas can be converted to tourist spots in a way that will minimise environmental degradation.

Population policy plays a key role in the preservation of natural resources and the environment. Its effect can be seen via food security, migration and waste management. Accelerated population growth often necessitates an increase in food production. Considering that the natural resource base of food is land, the pressure to increase production often leads to the prioritisation of short-term food production over the preservation of soil nutrients, resulting in environmental degradation.

Migration to less congested areas is a possible consequence of population pressure. A rapidly expanding population requires more land; hence, the tendency for people to move into new areas, including the environmentally-fragile upland areas, which leads to depletion and degradation of the natural resource base.

Another link between population and the environment is in waste management. Large populations lead to more emissions of pollutants and wastes, thereby requiring an efficient waste management program.

To sum up, the effect of government policies on the environment can be broken down into:

- the indirect impact of macro-economic and non-environmental, sector-specific policies;
- the externality type impact of non-environmental, sector-specific policies; and
- the direct impact of environmental and natural resource policies.

Policies inducing equitable economic growth are supportive of environmental protection and conservation, while failure to improve the economy translates to an additional burden on environmental management. Thus, the achievement of sustainable development hinges on the capability of the decision-making process to consider both the direct and indirect impacts of policies on the environment and to balance them with economic growth objectives.

AN ANALYSIS OF THE INTEGRATION OF ENVIRONMENTAL CONSIDERATIONS IN PHILIPPINE PLANNING, POLICY-MAKING AND PROGRAMMING

In the Philippines, the general framework for development is embodied in the medium-term development plans. These plans usually cover a period of four to six years. From 1971 to the present, there have been various development plans — the 1971–74, 1974–77, 1978–82, 1983–87, and 1987–92 development plans. The national goals and objectives of these plans have in common:

- (1) sustainable growth;
- (2) poverty alleviation;
- (3) provision of employment opportunities; and
- (4) the equitable distribution of wealth and income.

Thus, all of the plans proposed economic policies to address the problem of poverty and lack of productivity.

The Philippine planning process during the early years was not concerned with environmental issues, addressing only the factors that constrain productivity and growth. However, as the level of pollution in the Philippines worsened and natural resource degradation continued, the government took greater cognisance of environmental and natural resource management and increasingly integrated environmental considerations in the decision-making process.

Pre-1977

Prior to 1977, the integration of environmental considerations into decision-making was minimal, if not totally absent. The development plans focussed on the need to increase productivity and other standard macro-economic objectives such as employment creation, poverty alleviation, trade promotion, etc. During these years, the development plans did not even contain a chapter for the environment and natural resources sector.

In the 1971–74 Development Plan, the section on the agricultural sector barely incorporated environmental considerations: it only called for increased but timely use of fertilisers and pesticides. In the industrial and tourism sectors, the policies formulated made no mention at all of environmental considerations.

In the 1974–77 Development Plan, of the 14 basic development policies, none was directed towards the environment. The prime consideration in agriculture was to increase productivity, relying heavily on a strategy of intensive use of fertilisers and pesticides. The environmental implications of agricultural policies and practices were not adequately

studied. The plan also stated the need to develop the pesticide industry, whose products, if misused, are environmental hazards.

Industrial planning, likewise, did not incorporate environmental concerns. In fact, the plan presented conflicting policies. It sought the development of wood-based industries, which meant depletion of forest resources, at the same time that it sought to develop and conserve forest resources. In tourism, the Tourism Priorities Plan did not consider environmental effects in the choice of tourist areas.

In sum, environmental externalities caused by non-environmental factors were hardly recognised in the sector-specific policies. As a result, Cruz (forthcoming), for example, shows that the investment incentive program of the Board of Investments for the manufacturing sector favoured pollution-prone operations (see Table 1).

With respect to environmental and natural resource management, the plan gave more emphasis to the conservation and renewal of natural resources, such as fisheries and forestry. There was also concern about pollution. However, the approach used was more regulatory; that is to say, the imposition of penalties, rules on what constitute illegal practices, and anti-squatting measures. The approach failed

Table 1: BOARD OF INVESTMENTS SUBSIDIES, 1974

Product	Tax Exemptions	Tax Deductions	Tax Credits
I. Agro-Based	P 34,847	P 99,448	P 1,084
Fruit production	242	9,110	5
Livestock production	57	2,012	222
Marine products	1,635	899	
Cassava starch, cornstarch	442	2,074	
Coconut oil		34,140	
Processed coconut products and byproducts	200	687	
Processed food and beverage products	4,727	3,828	409
Ramie	7,321	2,231	
Fiber products	602	4,038	126
Wood and wood products	2,726	25,194	257
Pulp and paper; pulp of straw and abaca*	16,883	14,984	28
Paper products			21
Handicrafts	12	251	8
Leather products			8
II. Mining and Mineral Products	P 77,456	P 45,227	P 1,261
Iron ore	1,881		106
Copper*	57,477	29,432	227
Nickel, silicate ore			72
Primary steel*	17,505		371
Rock aggregate		2,763	89
Dinnerware		1,064	34
Ceramics, ceramic products			
Glass products, laminated safety glass			
III. Metal-Based	P 18,974	P 2,899	P 3,269
Machinery, equipment and parts	1,123	122	15
Metal products	3,561	445	1,290
Electrical equipment, electrical products			
IV. Chemical Based	P 52,292	P 22,664	P 18,260
Industrial chemicals, chemical and chemical products*	30,335	3,230	3,183
Petroleum products*			
Synthetic fibers	15,804	7,942	109
Textiles, textile products	3,360	5,395	4,890
Synthetic bags		4	40
Plastic products	69	223	110
Medicinal and pharmaceutical products			573
Garments	2,724	5,870	8,765

* Largest subsidies

Source: Bautista et al (1979) in Cruz (forthcoming)

to recognise such important causes of environmental degradation as the absence of environmental impact assessment for projects, ambiguity of property rights and incorrect valuation of natural resources.

Although the environmental and natural resource management policies during the pre-1977 period centred on renewal of forest resources, the period from 1961 to 1976 marked the peak of logging exploitation in the Philippines (Boado 1988). During this period, the hectareage of forests licensed for exploitation increased from 4,485 thousand hectares in 1960 to 10,598 thousand hectares in 1971, falling only slightly to 10,137 thousand hectares in 1976 (see Table 2). This reflects the influence of other policies (for example, the development of a forest products industry, revenue and foreign exchange generation) which were given higher priority over the forest renewal and preservation policies.

Table 2: FOREST AREA UNDER LICENSE, 1959-84 (IN THOUSAND HECTARES)

Year	Licensed Area
FY 1959-60	4,485
FY 1961-62	6,554
FY 1963-64	7,928
FY 1965-66	6,745
FY 1967-68	8,302
FY 1969-70	8,979
FY 1971-72	10,598
FY 1973-74	8,452
FY 1975-76	10,137
CY 1978	8,768
CY 1980	7,938
CY 1982	7,539
CY 1984	6,346

Source: Boado, 1988

1977-86

It was in 1977 that integration of environmental considerations in development planning was initiated. In the introduction of the 1978-82 Development Plan formulated in 1977, the President of the Philippines stated that:

The environment in which the Filipino family can flourish must be carefully deliberated and carefully planned. Human settlements must, therefore, be integrated and harmonized with the ecological system, so that they may be true habitats for the Filipino.

It was also in this plan that a whole chapter on environmental and natural resource management was included. Previously, environmental and natural resource management was merely a section of the chapter on agriculture and agrarian reform.

It is worth noting that in 1977 the Philippine Environmental Code was enacted, containing the standards for environmental protection and institutionalising the Environmental Impact Assessment (EIA) system. It was also in 1977 that the National Environmental Protection Council (NEPC) was established to take charge of environmental protection policies.

The 1978-82 Development Plan already included in its basic approaches the need for development activities to satisfy environmental standards. In agriculture, it called for the greater but judicious use of fertilisers and pesticides. For the first time, in consideration of the environmental

consequences of development activities in human settlements, the plan included as an industrial development policy the minimisation of ecological imbalance that may result from industrialisation. In the program for tourism, however, environmental consciousness was not yet evident.

The concern for the environment and natural resources under the plan was a big leap from the previous plans. Environmental and natural resource management was very explicit. It did not consider forest renewal as mere planting of trees; it also considered the social aspect of reforestation, that is, the need for the involvement of the local communities. The plan recognised the necessity of clear property rights for an efficient management of natural resources.

The 1983-87 Development Plan, formulated during the period of economic crisis, was not as elaborate as the 1978-82 Development Plan with respect to the environment, although it still stressed the need for maintaining ecological balance. The program for industrial development no longer mentioned the minimisation of environmental consequences as it did in the previous plan. In the conservation of land, the plan stressed the need for proper planting practices, application of appropriate technology and the use of irrigation.

The plan stated that natural resource management must be responsive to priority development programs in food, energy, industry, exports, housing and construction. It also called for the stricter implementation of environmental regulations. As in previous plans, forest renewal was stressed, as was development of industrial tree plantations. All agroforestry and reforestation programs were integrated into a single social forestry program.

Although development planning did incorporate environmental considerations, the operationalisation of the policies was not effective. For example, the implementing guidelines for the EIA system came out only in 1983, six years after the enactment of the Philippine Environmental Code. From 1983 to the first quarter of 1990, a total of 1,150 projects applied for environmental clearance. Of these, only 80 were required to submit an Environmental Impact Assessment study. During the period 1983 to 1986, no project proponent was ever penalised for failing to comply with the EIA requirement. Moreover, influential project proponents could easily secure exemptions from the coverage of the EIA system (de los Angeles et al, forthcoming).

Forest renewal and conservation have been stated as among the major environmental policies embodied in the plans during these periods. Statistics show, however, that their implementation was not very effective. The rate of forest renewal from 1976 to 1986 is given in Table 3. The highest reforestation achieved was 79,397 hectares in 1979. The Bureau of Forest Development (1985) reports, however, that the annual deforestation rate from 1970 to 1985 was approximately 85,000 hectares. This has led to reduction of the country's forest cover from 34 percent to 21 percent in the last two decades (Cruz, forthcoming). It can also be seen from the table that most of the annual reforestation targets were not met. It is apparent that the implementation of forest renewal programs was not effective and efficient.

Inability to implement policies that account for the direct effects of sector-specific policies on the environment was compounded by the economic crisis during 1983-1986.

The growth of the gross national product turned negative in 1984–1985 and the inflation rate surged by about 50 percent. Close to 60 percent of Filipino families lived below the poverty threshold level of 1985, compared to 49.3 percent in 1971 (de los Angeles et al, forthcoming). The slack in economic growth during this period had a negative impact, although indirectly, on the environment, thus making environmental and natural resource management a harder task.

In sum, development during this period was not sustained due to:

- (1) failure fully to integrate environmental considerations in development planning and policy-making;
- (2) lack of direction in environmental and natural resource management policy;
- (3) deficient operationalisation of the guidelines set by the development plans; and
- (4) inability of macro-economic policies to address the problems of poverty and productivity.

The 1983–1987 Development Plan was cut short by the “People Power Revolt” in 1986 which resulted in a change in government.

After 1986

Environmental concern was given a new hope after 1986 as was made evident by the following developments:

- (1) the 1987–92 Development Plan and its 1990–92 update;
- (2) the Philippine Strategy for Sustainable Development (PSSD); and
- (3) the merger of the environmental protection functions with the natural resource conservation functions.

As in the previous development plans, the 1987–92 Development Plan includes policies to alleviate poverty, increase productivity, provide employment opportunities and promote the equitable distribution of income and wealth. Such policies bear on the environment because, as proven time and again, the success of poverty alleviation activities certainly equates to a better environment.

Table 3: AREA REFORESTED ANNUALLY

Year	No. of Hectares Reforested	Development Plan Target
1976	31,733	41,000
1977	53,263	41,000
1978	78,415	277,000
1979	79,397	298,000
1980	60,516	319,000
1981	64,541	319,000
1982	63,262	339,000
1983	78,538	*
1984	38,935	*
1985	24,231	*
1986	32,810	*

* No target specified in the 1983–87 Development Plan

Source: Philippine Statistical Yearbook (1990); Various Philippine Development Plans

Environmental considerations in the decision-making process is also accounted for in the plan. For instance, in industrial policy, the government must be more vigilant against the dangers posed to the environment by industrialisation. Furthermore, the provision for continuing import liberalisation allows the entry of natural resource-based imports and, therefore, eases the pressure on the domestic natural resource base.

Investment policy also gives due regard to environmental issues. Among the requirements of the Omnibus Investments Code of 1987 is for an investor to submit an environmental clearance if the Board of Investments (BOI) deems it important. Under the Updated Plan, industrial development within the bounds of environmental considerations is made more explicit than ever. The recently enacted *Foreign Investments Act* 1991 also requires that foreign investors comply with Philippine environmental standards and regulations.

Likewise, in the programming of public investments, the Investment Coordination Committee of the National Economic and Development Authority (NEDA) Board requires the submission of environmental clearances for environmentally critical projects and projects located in environmentally critical areas.

The long-term sustainability of agriculture is also stressed in the plan. This entails security of tenure for the occupants of forest lands, watershed and forest conservation, pollution control and the minimal use of chemical pesticides. The use of Integrated Pest Management (IPM) in farming is encouraged whereby chemical pesticides which are environmentally hazardous could be resorted to only after the use of biological pesticides have been exhausted. Tourism planning, for the first time, takes account of the need for ecological balance.

To ensure against the depletion of natural resources, the plan taps the local communities for natural resource management. While such policy is the least costly safeguard measure, it is, in effect, an incentive to the local community as it gives them the right to police and take care of their own area. The plan also calls for an ambitious target of reforesting 100,000 hectares of land per year.

Under the plan, the Environmental Impact Assessment (EIA) system is to be fully implemented. The updated plan, meanwhile, recognises the need for unambiguous property rights and correct pricing of natural resources.

The PSSD stresses that environmental protection and economic growth are mutually compatible, that is, growth objectives should be compatible not only with the needs of society but also with the environment. This can be gleaned from the following general strategies of the PSSD:

- (1) integration of environmental considerations in decision-making;
- (2) proper pricing of natural resources;
- (3) property rights reform;
- (4) establishment of an integrated protected areas system;
- (5) rehabilitation of degraded ecosystems;

- (6) strengthening of pollution control;
- (7) integration of population concerns and social welfare in development planning;
- (8) inducing growth in rural areas;
- (9) promotion of environmental education; and
- (10) strengthening of citizens' participation and constituency building.

The current development planning and decision-making process provides for proper environmental and natural resource management. Environmental and natural resource management policy has shifted from one of being regulatory in nature to one which takes into consideration the social and economic causes of natural resource and environmental depletion. Environmental and natural resource management policy extends beyond social issues as it already acknowledges the importance of economic incentives to encourage efficient natural resource utilisation in the form of property rights reform and correct valuation of natural resources. The plan also considers the need of natural resource accounting to help planners and decision-makers to see the effect of natural resource depletion and environmental degradation on the economy, thereby, enabling them to formulate correct policy adjustments.

Aside from the integration of environmental considerations in development planning, there has been a change in the administrative structure of the environment and natural

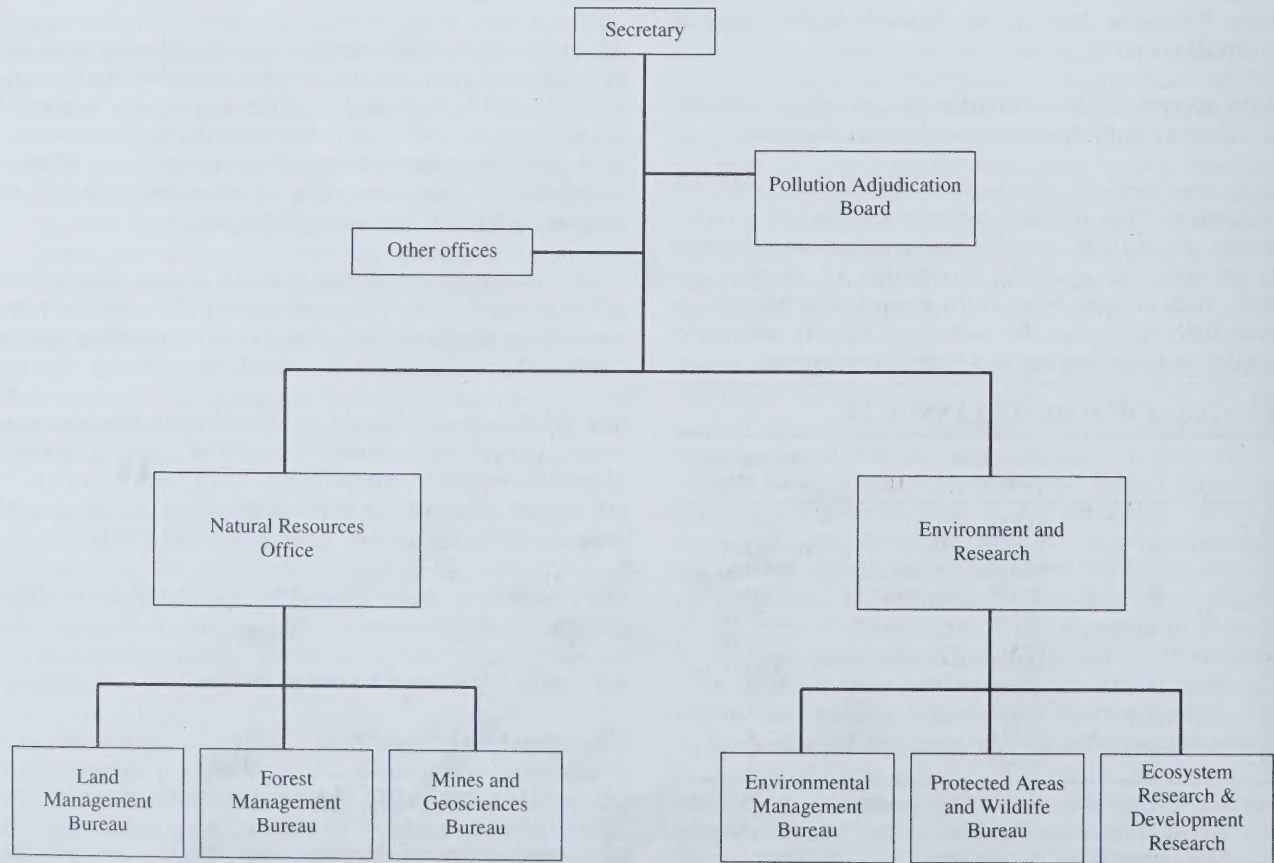
resource sector. Prior to 1987, the management of the environment was assigned to the National Environment Protection Commission (NEPC) under the Ministry of Human Settlements, while the management of natural resources was delegated to the Ministry of Natural Resources. In 1987, these two functions were merged under the Department of Environment & Natural Resources (DENR) (see Figure 2). Under its enabling law, the DENR's primary functions are to ensure the efficient utilisation of natural resources and, at the same time, protect the environment.

In the evaluation done by de los Angeles and Lasmarias (1990) on the DENR for the period 1986–88, they noted that there were improvements in the conduct of environmental and natural resource management over that of the previous periods, specifically in the following areas:

- (1) more equitable access to resources as concretised in the integrated Social Forestry and Small-scale Mining programs;
- (2) rehabilitative activities such as the National Reforestation Program and the rehabilitation of the polluted Calacan Bay; and
- (3) enlistment of private sector participation in various activities, including reforestation and pollution control.

Recognising the importance of clear property rights in forest conservation, the government, through the DENR, has sped up the awarding of the certificate of stewardship

Figure 2: SIMPLIFIED ORGANISATIONAL STRUCTURE OF THE DEPARTMENT OF ENERGY & NATURAL RESOURCES



contract (CSC), a form of long-term lease. The holders of CSC have almost doubled from 47,950 in 1985 to 93,070 in 1988. Nonetheless, even with the increase in the number of CSCs awarded, the total number of beneficiaries of the CSCs comprises only 6.5 percent of the 8.5 million inhabitants of forest lands. Hence, there is a need to hasten the classification of lands, identification of real forest occupants and awarding of the CSCs.

The DENR has also shown some success in the preservation of forest resources. The development plan for 1987–92 targetted an annual reforestation rate of 100,000 hectares. Although this was not achieved during the first two years of the plan, it was exceeded in 1989 when the DENR reforested 131,404 hectares through the effort of both the government and private sectors.

IMPROVING IMPLEMENTATION OF PROGRAMS FOR SUSTAINABLE DEVELOPMENT

There is little doubt that with the 1987–92 Development Plan and its update and the Philippine Strategy for Sustainable Development, the policies and strategies for sustainable development are in place. The challenge now lies in implementation of these policies. To improve implementation of programs for sustainable development, the government needs to address the following:

- (1) problem areas in environmental and natural resource management;
- (2) land-use planning;
- (3) coordination within the government in both policy formulation and project implementation;
- (4) decentralisation; and
- (5) role of non-governmental organisations.

Problem areas in environmental and natural resource management

Although there have been inroads in environmental and natural resource management, much work has to be done in the areas of:

- (1) the valuation of natural resources; and
- (2) environmental hazards such as pollution.

The country's natural resource management is beset with ineffective bans (for example, selective logging ban, ban on conversion of mangroves into fishponds), and inadequate pricing of natural resources that serve only to encourage illegal logging. The DENR has responded through measures that will address the inadequate costing of natural resources extraction. However, such reforms, which entail changes in the tax structure, must pass through the congressional mill. This was the case of the Forest Charges Reform Bill which was finally approved and made into law but its implementation is yet to be seen.

The government has increased its efforts to control pollution primarily through the help of non-government

organisations (NGOs), but the pollution problem remains a very serious one. The inability to address the pollution problem may be attributed to:

- (1) the inconsistency in the penalty structure against pollution; and
- (2) the indirect effect of other sectoral policies such as transportation and energy policies. De los Angeles and Lasmarias in their study showed that the current schedule of pollution fines is regressive; as one pollutes more, the incremental fine becomes smaller.

Clearly, there is no incentive to pollute less.

Pollution is aggravated by the country's energy and transport problems which leave the government no option but to use diesel for mass transportation and fuel oil for the energy requirements of industry. Although these petroleum products would have minimal environmental effects if they are efficiently combusted, poor maintenance and out-dated vehicles and equipment in the energy and transport sectors contribute substantially to Metro Manila's serious pollution problem. The few additional mass transport vehicles purchased in recent years have led only to incidental and marginal environmental benefits.

Land-use planning

Land is a resource of many uses, but the inability to harmonise these uses will constrain efforts to achieve sustainable development. Development planning should, therefore, be accompanied by a land-use or land zoning plan to ensure that development activities are within environmental limits. Moreover, land-use planning has to go beyond the national level down to the regional and even sub-regional levels. This will ensure that the land-use plans take into account the differences among regions or sub-regions.

Land-use plans in the past were all unsuccessful primarily because they have failed to recognise differences among the regions. With this hindsight, the government has initiated the formulation of land-use plans for each region known as the Regional Physical Framework Plan (RFPF). This plan contains the specific policies and strategies that would define the use of land subject to the environmental limits imposed by the prevailing conditions in the region. In particular, it details the desired spatial arrangement of land-using activities such as production activities, human settlements and infrastructure activities. It also specifies the areas where environmental rehabilitation and protection is necessary. But the regional plans are still preliminary. It is expected that the provincial and municipal physical framework plans will eventually be formulated in accordance with the RFPF.

Coordination within government

Policies with environmental and economic considerations components can be effectively operationalised through proper coordination between and among implementing government agencies. In the Philippines, implementation of policies is assigned to the department under whose domain the policy falls — trade and industrial policy to the Department of Trade & Industry, infrastructure to the Department of Public Works & Highways, agriculture to

the Department of Agriculture, education to the Department of Education, Culture & Sports, tourism to the Department of Tourism, etc.

Coordination among government agencies must exist at the national level where general policies are formulated, and at the regional and sub-regional levels where the projects to implement the policies are undertaken.

Currently, efforts are underway to improve coordination among the different government agencies at national level, primarily through the cabinet cluster system and the NEDA board committees. Closer coordination, for example, is forged between the DENR and the NEDA secretariat to ensure that government infrastructure projects complete the necessary environmental impact studies.

One of the key factors hampering integrated planning is the lack of expertise to handle environmental concerns. On the other hand, putting many environmental experts in each department may not be feasible. What is needed perhaps is for the government to build the expertise largely within the DENR and for the other departments to tap the DENR for their environmental requirements.

Coordination among government agencies at the regional level is through the Regional Development Councils (RDCs) whose membership consists of the regional offices of the various government agencies and representatives of the local government units within the region. With the decentralisation in the decision-making and project implementation processes, coordination becomes doubly necessary.

Decentralisation

Decentralisation in the formulation and implementation of policies is important if one has to achieve sustainable development. Decision-making, in principle, consists of maximising the welfare or utility function of a community subject to the information available to the decision-maker. The relevant information pertains to the preferences of the agents in the community, the endowments of the community, the externalities that exist within the community, and the technology available to the community.

The ability of the decision-maker to assimilate the entire set of information is, however, dependent on:

- (1) the size of the area covered; and
- (2) the number of economic agents through which the information is transmitted.

The greater the number of economic agents through which the information is transmitted, and the greater the magnitude of the information which the decision-maker must consider, the higher is the chance of omitting relevant information.

In a highly centralised system, the information from each region or area has to be transmitted to a central office where the decision is made and, in most cases, the information has to pass through various levels. It is also the case that the more centralised a system, the larger is the area covered — hence, the greater the chance of

omitting relevant data and the lesser is the chance to respond to the welfare of a specific community.

In a decentralised system, on the other hand, local officials take greater cognisance of the unique features of their local communities. Therefore, they can tailor policies and programs to the demands and circumstances of their constituencies.

How does decentralisation relate to the administration of environmental and natural resource management policy? With decentralisation, local communities would have a larger hand in management of natural resources within their domain. In addition, environmental protection measures, such as the environmental impact assessment, can be conducted more promptly at the local level.

The government has started delegating powers and functions of the national government either to the local government units or the regional offices of the various departments. In a major effort to increase the role of local government units, a new Local Government Code was enacted. Under the Code, local government units are given more powers and functions in the development of their respective localities, for example, agricultural extension, infrastructure development, among others. Along with their empowerment, the local government units are entrusted with more funds.

In environmental and natural resource management, the provincial government is given the power to enforce forestry laws concerning community-based forestry projects, pollution control laws, small-scale mining law and other environmental protection laws. Municipalities, on the other hand, have the power over the implementation of community-based forestry projects, management of communal forests with areas not exceeding 50 sq. kms., and the establishment of tree parks, greenbelts and forest development projects. It may be noted that prior to the enactment of the Code, the DENR has already started the delegation of central office functions to the regional, provincial and community levels.

The not-so-desirable aspect of decentralisation, however, is that it will accentuate administrative inadequacies. The Environmental Management Bureau (EMB) of the DENR, the bureau charged with the function of environmental protection and monitoring, is too small to handle its present tasks. For example, the eight-man staff of the EIA section of the EMB cannot cope with the increasing volume of PD/EIS submissions (de los Angeles et al., forthcoming). Clearly, decentralisation would accentuate the lack of trained personnel in environmental and natural resource management. There is, therefore, a need to train and employ more people skilled in environmental monitoring, evaluation and project implementation at the local level.

Role of non-governmental organisations (NGOs)

The private sector, specifically the NGOs, can be partners-of-development at the local level, such that they can use their network to gather information relevant to the formulation and implementation of policies and programs. The NGOs can also assist both in the monitoring and the implementation of projects as well as in environmental

education. In forest resources management, for example, the local NGOs can be given a larger role since it is to their advantage and interest that the forests are effectively managed. The role of the private sector even becomes more important once we consider the limited resources of the government.

In recent times, the government has enlisted NGO participation in environmental activities. The DENR has established an NGO Desk in order to facilitate its contacts with these groups. In an effort to increase the role of the private sector in the decision-making process, the RDCs have representatives from the private sector. The government has started contracting the implementation and monitoring of projects to these groups.

THE ROLE OF THE INTERNATIONAL COMMUNITY

In supporting sustainable development in the Philippines, the international community has an important role to play in the domestic macro-economy as a whole and in the environmental and natural resources sector in particular.

The domestic macro-economy

The continued underdevelopment of the country has contributed to natural resource and environmental degradation. The crisis in the early 1980s retarded the country's growth. Although the country posted gains upon the assumption of a new administration, the recovery has been stalled by lack of resources to finance developmental programs. The country has had negative net resource transfers in recent years. At the same time, the current account deficit has been growing. The role of the international community then is to reduce the outflow of resources, making funds readily available for developmental purposes. This could be achieved through debt relief or the grant of new loan facilities under preferential terms.

The environment and natural resources sector

The importance of the environment to the global economy is gaining ground. A number of international organisations has been involved in the formulation of policies that integrate environmental and economic concerns. The Asian Development Bank (ADB) has sponsored a program which would operationalise recommendations of the World Commission on Environment & Development in several countries, including the Philippines. It has also established an environment section and is applying the EIA system in the appraisal and implementation of its projects.

The Philippines, as in all other developing countries, has problems in financing its environmental and natural resource projects. The country does not have enough resources to implement the needed programs. For example, among the hindrances to effective decentralisation in environmental and natural resources management is the lack of trained personnel. The international community could step in to provide technical and capital assistance in support of activities in the environmental and natural resources sector.

CONCLUSION

Over the years development planning and decision-making in the Philippines have increasingly incorporated environmental considerations. There has been a shift in policies from the regulatory type to more of the developmental type. The planning process now takes account of the direct impact of sector-specific policies on the environment and policy-makers use economic incentives for environmental and natural resource management. With the Updated Plan and the PSSD, the policies for sustainable growth are laid down.

The decision-making process does not, however, end in the planning stage. More importantly, it involves implementation and operationalisation of such plans and programs. To achieve this, the government has to improve further its specific policies and synchronise them with the policy pronouncements, especially in the natural resources and environmental sector. There remains the challenge of fine-tuning and, finally, operationalising the country's national, regional and local land-use plans. Lastly, the government may need to decentralise its functions and rely more on NGOs. If it does, it would require more coordination among agencies in the government and private sector.

Implementation of policy and structural reforms mentioned above largely depends on availability of resources. With the negative net resource transfers, the Philippine government would find it difficult to finance these reforms and adjustments. It is hoped that with its commitment to include environmental considerations in its development plans despite financial constraints, and with growing international concern for the environment, the international community would lend a hand to support the Philippine program for sustainable development.

REFERENCES

- Asian Development Bank. *Economic Policies for Sustainable Development*. Birdsall, N. (1989). "Economic Analyses of Rapid Population Growth." *The World Bank Research Observer* 1(January): 23-50, Washington, D.C.: World Bank.
- Boado, E. (1988). "Incentive Policies and Forest Use in the Philippines," in *Public Policies and the Misuse of Forest Resources*, edited by R. Repetto and M. Gillis. Cambridge.
- Cruz, W. (forthcoming). Mimeograph.
- and M.S. de los Angeles (1988). "Forest and Upland Resources Management: A Policy Framework", *Journal of Philippine Development* 15 (First Semester 1988): 1-13. Makati: Philippine Institute for Development Studies.
- de los Angeles, M.S. (1982). "Research on Forest Policies for Philippine Development Planning: A Survey", *Survey of Philippine Development Research II*. Makati: Philippine Institute for Development Studies.
- , B. Balagot-Gan, D. Ganapin, P. Intal, J. Padilla, E. Palanca and L. Penalba (forthcoming). *Economic Policies for Sustainable Development in the Philippines*. Makati: Philippine Institute for Development Studies.
- and N.C. Lasmarias (1990). "A Review of Philippine Natural Resources and Environmental Management: 1986-1988", *PIDS Working Paper Series No.90-08*. Makati: Philippine Institute for Development Studies, January.
- National Economic Council (1970). *Four-Year Development Plan (FY 1971-1974)*. Manila.
- National Economic and Development Authority (1973). *Four-Year Development Plan (FY 1974-1977)*. Manila.
- (1977). *Five-Year Philippine Development Plan, 1978-1982*. Manila.
- (1982). *Five-Year Philippine Development Plan, 1983-1987*. Manila.

- _____. (1986). *Medium-Term Philippine Development Plan, 1987–1992*. Manila.
- _____. (1990). *Updates of the Philippine Development Plan, 1990–1992*. Manila.
- _____. (1989). *Medium Term Public Investments Program, 1990–1994*. Manila.
- _____. (1978). *1977 Philippine Development Report*. Manila.
- _____. (1982). *1981 Philippine Development Report*. Manila.
- _____. (1985). *1984 Philippine Development Report*. Manila.
- _____. (1988). *1987 Philippine Development Report*. Manila.
- _____. (1989). *1988 Philippine Development Report*. Manila.
- _____. (1990). *1989 Philippine Development Report*. Manila.

- National Statistical Coordination Board (1990). *1990 Philippine Statistical Yearbook*. Manila.
- Philippine Institute for Development Studies (1985). "Economic Policies for Forest Resources Management", *Summary of the Papers and Proceedings of the Seminar-Workshop on Economic Policies for Forest Resources Management on February 17–18, 1984*, edited by W. Cruz. Makati.
- World Commission on Environment and Development (1987). *Our Common Future*. Oxford University Press.
- Yap, J. (1991). "The Philippines: Recent Performance, Prospects for 1991–92, and Policy and Development Issues", *PIDS Working Paper Series No. 91–01*. Makati: Philippine Institute for Development Studies, January.

The Political Economy of Environmental Policy in Hong Kong

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ENVIRONMENTAL PROTECTION AND POSITIVE NON-INTERVENTIONISM

Hong Kong represents the triumph of free market capitalism. The people of Hong Kong readily admit that the economic success of Hong Kong stems from a deliberate policy to protect private property rights, promote open and competitive markets, and limit the role of government. Such a policy was summed up in the phrase "positive non-interventionism" coined by the former Financial Secretary, Sir Philip Haddon-Cave. Yet such an explanation of Hong Kong's economic success cannot be satisfactory. One has to go one step further in the analysis. What is it which has brought about the protection of private property rights, the promotion of competition and the encouragement of a limited government? Why has the government of Hong Kong shown much more restraint than the governments of the industrialised states in the West and those of the developing Third World? Why have British bureaucrats in Hong Kong adopted policies which until recently they had abandoned even in their own country? Surely the answer cannot be because they are wiser or less selfish. It is, rather, that they have acted under different institutional constraints.

The political survival of the British rulers in Hong Kong did not depend as much on the systematic purchase of the support of special interest groups as they had to in Britain or other democracies. The absence of a representative government does not, however, mean the total absence of accountability. The legitimacy of the government still depends on how well public duties are discharged. A highly discontented and misruled population is unlikely to be tolerated by the neighbouring Chinese government. The British rulers being few in number and temporary in their intentions to stay in the territory have had little incentive

or ability to impose their preferences on the population. Senior civil servants were more interested in minimising conflict than in maximising budgets.

One of the main explanations of Hong Kong's economic prosperity and its policy of positive non-interventionism is therefore political. Government has been strong enough so that private property rights have been adequately protected from the encroachment of special interest groups, but weak enough to allow the private sector to flourish without undue regulation. Society was able to remain highly depoliticised. From this perspective there is good cause to believe that the existing political and economic arrangements will be severely threatened when the British depart in 1997 because most of the institutional constraints under which the Hong Kong government has operated will disappear.

What implications will this have for environmental protection and economic growth in Hong Kong? Will positive non-interventionism survive the transition to 1997 and beyond? In the past, the official economic policy of positive non-interventionism has led the government to refrain actively from intervening in the market unless there is clear evidence that private actions are harmful to the well-being of society and state action can lead to an obvious improvement. It is important to recognise that positive non-interventionism as an economic policy does not in itself condone the activities of polluters that harm the public.

But such a policy can be easily construed to mean that government should not interfere in the activities of business even when there is a clear case of market failure because it harms economic growth. Business interests have an obvious incentive to promote such an interpretation. The dominance of these interests in the policy decision-making process, facilitated by the absence of a representative government, has been important in determining the outcome of environmental policy.

The simplistic view that the ideological commitment to positive non-interventionism implies an innate pre-disposition towards environmental neglect is not really tenable.¹ The fact that positive non-interventionism has not prevented the government from intervening massively in the market in the areas of education, health and housing is evidence

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that the failure to control environmental deterioration in Hong Kong is not merely a matter of ideological belief alone. Indeed, bold initiatives originating from the government have often been instrumental in rallying public support, including business groups, for environmental causes. Sometimes the government has even gone against industry interests to pursue these initiatives. For example, on 19 June 1989, the import of raw ivory was banned even though Hong Kong was the world's largest manufacturing centre of ivory products. The action precipitated strong protest from the industry and workers who lost their jobs. The government also acted promptly to enact the Ozone Layer Protection Ordinance on 1 July, 1989, which brought into effect international obligations contained in the 1985 Vienna Convention for Protection of the Ozone Layer and the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer.

Unlike other rapidly developing economies in the region, which have generally followed a more interventionist economic strategy in promoting economic growth, Hong Kong's economic growth has been achieved by permitting private agents to pursue their own interest with minimal interference from the state. Therefore, when unfettered economic activities in the private domain began to threaten the environment, the government could distance itself from being directly responsible for the malaise. In fact, the Hong Kong government has often sought to maintain a certain degree of neutrality and distance while attempting to mediate between various parties over environmental policy.

Major policy initiatives in the environmental area were primarily driven by government rather than simply reactive to public demand. One can broadly distinguish three phases in the development of environmental protection in Hong Kong. The period from 1967 to 1977 was a period of awakening, when the problems of pollution came to be recognised and social priorities were being evaluated. Government recognition of the environmental impact of rapid economic growth came quite early. In the late 1960s and early 1970s, a number of advisory committees were established to advise the government on environmental issues. In 1974, a major initiative was launched to study environmental problems culminating in the government commissioned report by the Environmental Resources Limited.²

The next period from 1977 to 1987 was one of strategy development. Efforts in this period were focused on the creation of an agency, promulgation of environmental regulations and standards, establishment of a monitoring network, provision of basic disposal facilities, and commissioning of studies to investigate problems. But progress in the area of environmental protection was very slow owing, in large part, to the nature of the decision-making process of the Hong Kong political system; a system characterised by government through consultation. The process of seeking consensus over a highly divisive issue like environmental policy necessarily resulted in very limited success.

In 1988, Governor Sir David Wilson launched another major environmental initiative. The coming decade will focus on implementation and forward planning. It is the period when resources are to be mobilised and policies translated into action.³ Recognising that past planning mistakes have created many problems, the government has underscored the role of planning — provision of waste

disposal facilities and services, preparation of town plans that avoid incompatible land uses, and incorporation of environmental considerations into strategic plans.

In the past, the official economic policy of positive non-interventionism has led the government to refrain actively from intervening in the market unless there is clear evidence that private actions are harmful to the well-being of society and state action can lead to an obvious improvement. It is important to recognise that positive non-interventionism as an economic policy does not in itself condone the activities of polluters that harm the public.

But the changing political landscape caused by the impending restoration of sovereignty over Hong Kong to China in 1997, and the resulting change of the political system during the transition period, was beginning to alter the decision-making environment in Hong Kong. The appearance of electoral politics and the increasing importance of China as a political force in local politics were being felt even in environmental issues. The rapid integration of Hong Kong's economy with that of Guangdong province in Southern China following the opening of China was beginning to introduce a new dimension into the debates over environmental issues. The politics and economics of the environment became increasingly intertwined with developments in China and China's political and economic interests in Hong Kong.

ADMINISTRATIVE AND CONSULTATIVE MACHINERY

The absence of popular representation in Hong Kong's political system to channel public opinion into the policy-making process was partially resolved through the operation of a system of more than 300 advisory committees whose appointed membership represents a broad spectrum of interests in society. This membership is, by and large, dominated by professional and business interests. While the government values the contribution of these committees, it tries also to keep them in line by changing the appointed membership and insisting on a policy of positive non-interventionism so that the committees do not degenerate into entrenched lobbying forums for special interests.

At the beginning of the 1970s, there were four advisory committees with responsibility for advising on environmental issues. They were the Advisory Committee on Air Pollution, the Advisory Committee on Environmental Pollution on Land and Water, the Advisory Committee on Noise Pollution, and the Advisory Committee on the Preservation of Nature. Rapid economic growth in the 1960s exacerbated the problem of environmental pollution and these committees appeared increasingly inadequate to the task of advising government on policy in this area. Within government implementation of various recommendations was also poorly coordinated with no department or

unit having overall responsibility. The government decided to combine the four advisory committees into a single Advisory Committee on Environmental Protection (EPCOM) whose task was to advise the newly established Environment Branch within the Government Secretariat. The Branch was headed by a Secretary who had responsibility for formulating and coordinating environmental policies within government and initiating environmental legislation.

It was at this time that the government also decided to engage a consultant from London to study the problem of environmental protection. Environmental Resources Limited submitted its Stage I report in August 1975 and its final report in June 1977. The consultants concluded that environmental pollution was due largely to the absence of a comprehensive legislative framework for environmental control. To address these problems, the consultants proposed enactment of five pollution control ordinances, to cover air, water, noise, waste and environmental impact assessment, and establishment of a central pollution control unit.

The main thrust of the proposals was to seek to protect and improve the environment in three main ways:

- (1) by imposing controls on emission levels at the pollution sources;
- (2) by providing adequate facilities for the collection, treatment and disposal of wastes; and
- (3) by incorporating environmental considerations in land-use, town and project planning.

The consultants had opted at the very outset for a command and control approach to the problem. This basic approach to the environment characterised the government's strategy to environmental protection in the ensuing years. Interestingly, the consultants considered the economic policy of positive non-interventionism as being partly responsible for the absence of an overall pollution abatement policy because it allegedly did not seek to control and restrain the activities of the polluters.

The Environmental Protection Unit (EPU) was accordingly set up in 1977. It was subsequently expanded and renamed the Environmental Protection Agency (EPA) in 1981 and, later, the Environmental Protection Department (EPD) in 1986. The restructuring in 1986 enabled the EPD to incorporate various pollution control units in other government departments and effectively to integrate environmental monitoring, policy formulation and enforcement.

Whilst the EPD is responsible for the day-to-day implementation of the pollution control program, environmental control policies are made further up in the government hierarchy, in the appropriate policy branch of the Government Secretariat. This policy-making structure is highly centralised and characterised by effective control and direction from the centre to ensure that the activities of various departments are in line with the overall objectives of the government.

When first established, the EPU was placed under the Environment Branch (EB). In 1981, the EPU became the EPA and was placed under the expanded Administration

and Environmental Affairs Branch (AEAB). When the AEAB was reorganised in 1982 into the Home Affairs Branch (HAB), the EPA was placed under the Health and Welfare Branch (HEWB). In 1989, the EPD came under the Planning, Environment and Lands Branch (PELB). This reshuffling reflects a shift in the policy focus from basic health concerns to the recognition that environmental protection has to be integrated with planning and development.

In line with Hong Kong's policy-making process, the public is consulted on major environmental policy matters. EPCOM is the main consultative vehicle. The composition of the committee has undergone some changes. When first constituted in 1974 it was chaired by the Secretary of the Environment, but since 1981 only unofficial members (non-bureaucrats) have served as chairmen of the committee. Since the very beginning EPCOM had always included an *ex officio* representative from each of the three associations representing industrial and commercial interests: the Chinese Manufacturers Association of Hong Kong, the Hong Kong Federation of Industries and the Hong Kong General Chamber of Commerce. In later years members from environmental groups have been appointed to the committee. For example, since 1981 a member of the Conservancy Association, since 1986 a member of the Friends of the Earth, and since 1989 a member of Green Power have each been appointed to the committee, but all serve only in their personal capacities. The composition of the committee is designed to encompass people with different interests and, at the same time, bring together people in the government decision-making machinery. But it is clear that from the outset organised commercial and business interests were well represented on the committee.

POLLUTION CONTROL

In the absence of government initiative, Hong Kong's political system is heavily stacked against bold measures in environmental policy. The decision-making process is necessarily incremental because it relies on fostering consensus within the advisory committee system and protracted bargaining for budget allocations within the bureaucracy. The main policy objectives of the government in the 1970s were to bring about environmental improvement in different stages: to contain pollution levels in the short term by limiting emission to the levels prevalent at that time; to prevent deterioration in the medium term by placing emission control on new industries; and, in the longer term, to look for improvement through the process of urban and industrial renewal. This approach is reflected in the pollution control legislation which has been left flexible and ineffective. Four pieces of legislation, covering water, air, noise and wastes have been passed to provide the necessary framework for protecting the environment. But their effectiveness in dealing with environmental control is very much in doubt.

For example, the Water Pollution Control Ordinance (WPCO), enacted in July 1980 and brought into effect in April 1981, dealt with industrial effluent. It encountered enormous resistance from the industries. As a result a number of changes were made to the ordinance. First, existing discharges from factories were exempted and a 30 percent increase in discharge was allowed in the future (the 30 percent clause was rescinded recently). Second, only

newly established factories are required to have discharges licensed as stipulated by legislation. In actual effect the ordinance did little to improve the environment even in the longer run because most of the affected industries were declining and existing factories were being relocated into China.

The Water Pollution Control (Amendment) Ordinance 1990 originally required industry to clean up the organic load in their discharges, while the chemical load would be treated at the Chemical Waste Treatment Centre (CWTC) to be built by government. By the time consultation with industry was completed, the burden of treating organic waste had been shifted onto government. Since the government has no means to undertake such treatment until the first phase of the announced Sewage Strategy is in place, nothing will happen on this front until after 1995. The original plan to impose an ad valorem duty on specified chemicals imported into Hong Kong to pay for the CWTC was shelved after encountering opposition from heavyweight members in the industry.

Another example is the Air Pollution Control Ordinance (APCO) enacted in 1983. Under the ordinance any new industry specified in the ordinance has to obtain a licence from the EPD that stipulates the conditions of emission. Specified industries established before October 1987 would be exempted. Air pollution abatement notices were issued to factories suspected of violating the APCO. A factory owner appealing against the abatement notice cannot be required to reduce emission until it is proved that the effluent discharge poses a health threat to people in the neighbourhood. Thus a single case may take a long time to resolve. Given the large number of small factories in Hong Kong the real effects of the ordinance are unlikely to be impressive.

After a long delay, the Noise Control Ordinance (NCO) was finally enacted in July 1988. The real effect of the ordinance has yet to be observed, since the related regulations were not ready until 1989 and industry has been given six to nine months to adjust to the new requirements. Furthermore, the criteria for the control of noise are set to be less stringent initially and more stringent after three years. There is also an Appeal Board for those aggrieved by the decisions of the EPD. Interestingly, economic hardship is one of the grounds for appeal.

The above examples serve to illustrate that environmental control through legislation is not the panacea to pollution problems. It takes a long time to draft bills and to get them passed. The consultation process is drawn out and there is ample opportunity to make amendments that soften its effect on industry. Furthermore, given that Hong Kong has 50,000 factories, most of which are very small in size, the EPD is hopelessly understaffed. Monitoring emissions from factories is unlikely to be effective. Identifying the polluter in a multi-storey, multi-purpose building is also exceedingly difficult. The courts are also reluctant to impose heavy fines because they recognise that most of these small factories are crowded into multi-storey buildings where there is neither the space nor the height to accommodate the treatment equipment required for meeting the prescribed standards.

But this is not to say that there has been no progress. Among the various forms of pollution, air quality is of

greatest concern to the public and it is also the area where the EPD has scored its most spectacular successes to date. On 1 July, 1990, regulations prohibiting the use of high sulphur fuel oil came into effect despite pleas of imminent bankruptcy from industry. On 1 April, 1990, unleaded petrol arrived in Hong Kong, a product resisted for years by the oil companies. But the control of diesel vehicles, used mainly by the taxi and minibus industries and by commercial vehicles, is unlikely to be successful for a long time because of industry resistance.

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What one observes in Hong Kong is that effective environmental measures can be introduced provided that there is overwhelming public support to overcome industrial and commercial resistance and when the source of the pollution can be easily identified and targeted for correction. The successful rallying of public support for these air pollution control measures was certainly facilitated by the fresh initiatives of the Governor in January 1990 to appoint the Environmental Campaign Committee (ECC) as a vehicle to help publicise environmental issues and coordinate the activities of the non-governmental environmental groups: the Conservancy Association, Friends of the Earth, Green Power, World Wide Fund for Nature, and other smaller organisations.

Another factor that has developed recently in the area of pollution control stems from the growing economic integration of Hong Kong with China. The relocation of many manufacturing plants in China and the emergence of Hong Kong as a service economy has partially transferred Hong Kong's pollution problem to the north. The opening of China has created fresh opportunities for foreign investment, primarily from Hong Kong, in the neighbouring Shenzhen Special Economic Zone and Guangdong province. Today Hong Kong firms employ an estimated 3 million manufacturing workers in this part of China as compared with 680,000 in Hong Kong. The rapid industrialisation of this area in China and the resulting concentration of population in the areas close to Hong Kong will undoubtedly create pollution problems not only for China, but also for Hong Kong because of its close proximity. Interestingly, in April 1991, Shenzhen complained that the carbon dioxide emissions from power plants in Hong Kong were exporting pollution to Shenzhen in the form of acid rain. Many of the environmental problems, particularly those of air and water pollution in Hong Kong, cannot be dealt with in isolation from China and vice versa. In 1989, there was a proposal to set up a cross-border governmental liaison group. But the proposal has been put on hold after the Tiananmen Square tragedy, and the group has met only once, in July 1990.

Another area where relations with China may prove to be important is waste disposal. Prior to 1966 the principal method of waste disposal was controlled tipping. It fell from favour after the mid-1960s. Incineration then became popular. In the 1970s a strategy of using volume reduction pre-treatment methods before final disposal at controlled tips was adopted. The wastes in Hong Kong are collected by both the government and private operators. The Urban and Regional Councils are responsible for collection of household wastes from fixed points and control of litter in the streets. Most of the household wastes so collected are taken to incinerators. Private contractors are engaged in the transfer, in the case of household wastes, to the refuse collection points, and in the case of commercial and industrial wastes, to government-operated landfills.

The government have made provision to build incinerators and develop landfills, but the infrastructure that brings the waste to the disposal sites is poorly developed. The most severe problem is the sewerage system, which has fallen far behind the pace of urban and industrial development. A new Drainage Services Department was set up on 1 June 1989 to provide and maintain sewage collection and disposal infrastructure. A comprehensive Waste Disposal Plan was approved in December 1989 and a \$10 billion Sewage Strategy was to be implemented in 10 years. The cost has now ballooned to \$17 billion as a result of inflation and slippage.

The building of the sewage system is plagued by even more difficult problems on the horizon. The government budget is very tight because of the commitment to the Port and Airport Development Strategy (PADS) originally budgeted for \$127 billion in 1989. The cost has undoubtedly further escalated due to the delay caused by difficult discussions to seek China's blessing for the PADS project. The shortage of funds has prompted EPCOM to float the idea that the sewage system would be financed partly by user fees. The proposal has already drawn criticism from the public. The building of the sewage system is also complicated by the fact that it needs China's agreement because the disposal of the treated effluent will require construction of a 30-kilometre long outfall into the ocean, thereby passing through territorial waters claimed by China. It is not clear how China views such a project.

FORWARD PLANNING

Whilst the emphasis on forward planning is widely acclaimed, it is likely to run into major problems arising from the deficiencies of the current planning system and from the difficulties in undertaking planning for an uncertain and fluid future. To help focus ideas consider three issues: provision of waste disposal facilities and services, preparation of town plans that avoid incompatible land uses, and incorporation of environmental considerations into strategic plans.

At present, the current planning system is not guided by any overall philosophy. Positive non-interventionism has been a widely accepted approach in the area of economic growth, but a comparable approach to environmental planning is lacking. Relevant experience in the area of pollution control has followed a largely ad hoc control approach based on detailed case by case legislation. Whatever merits such an approach has in the control of pollution, it is largely irrelevant for planning purposes.

In economic terms, environmental problems result from the presence of externalities or uncompensated spillover effects. When such a situation arises there is a possible case for the government to intervene in the market process either directly through controls that restrain private action or through establishing market incentives that encourage responsible voluntary action. The control approach requires an enormous amount of prior information on a case-by-case basis in order to be practicable. This may be feasible as a method to control pollution on a case-by-case basis, but is not very useful for planning purposes because information about anticipated consequences is generally not available and subject to much dispute. While the control approach can be sometimes effective, it nevertheless suffers from being overly bureaucratic, ad hoc, and not always fair and open.

Highly publicised consultation is not a panacea either. Experience from numerous countries reveals that consultation among interested parties, whether conducted privately or publicly, is not a very fruitful way of resolving conflicts of interest in a sensible way. They often appear as highly publicised acts to canvass political support. Furthermore, in view of Hong Kong's uncertain political transition and emerging democratic political system, it is not at all clear that the necessary political and administrative institutions can be put in place soon enough to operate effectively and have an impact.

An alternative market approach based on a better delineation and enforcement of property rights relying on market incentives may be more relevant.⁴ Such an approach has a natural affinity with Hong Kong's stated laissez-faire philosophy, but there is very little practical experience elsewhere. Moreover, it may be politically difficult to introduce market mechanisms into certain practices like preparation of town plans that avoid incompatible land uses and incorporation of environmental considerations into strategic plans.

The problem of incompatible land use is especially difficult because most land held in Hong Kong is leasehold land. Therefore, any attempt to resolve conflicts of interest must involve the government in a central way. Any attempt to change the designated use of a plot of land has to be approved by the Lands Department and may require the payment of compensation to the government, the amount of which is also determined by the Lands Department. The process of granting a change in the designated use of a given plot of land and the calculation of the amount of compensation to be paid is not open to public scrutiny. Such an approach is favoured by experienced property developers who are familiar with the system and who often employ retired civil servants from the Lands Department to handle these applications. Clearly any attempt to change the Town Planning Ordinance will meet with strong opposition from property developers. In Hong Kong, there is also a unique situation where many industrialists are also property developers making it even more difficult to resolve conflicts of interest regarding environmental issues through consultation alone.

Some success has been achieved by the government in dealing with the problem of incompatible land use in the New Territories, a rural area that is rapidly urbanising. The British administration has always recognised special rights or privileges of the traditional landowners in the New

Territories out of prudence, so as to avoid serious conflicts with the well-organised landowners led by the Heung Yee Kuk, one of the most well-organised political groups in Hong Kong. Rapid economic growth has, however, greatly increased the value of land in the New Territories leading to an enormous demand for conversion of agricultural land to new uses. The uncontrolled conversion of agricultural land became prevalent after the 1983 case of *Melhado Investment Ltd. v Attorney General*, which held that land designated as "agricultural" was not in law confined to agricultural use. Until 1983, a system of short-term waivers was accepted as appropriate and reasonable.

As a consequence of the 1983 ruling, paddy fields have been filled to form storage areas, often without proper surveys and drainage. This resulted in severe flooding in rainy seasons, leading to injury and economic loss. The uses to which the converted land was put caused visual pollution of attractive rural areas, and often brought road chaos, with large lorries manoeuvring on small roads to dump old cars, building materials and containers. Part of the New Territories increasingly came to resemble a large dumping ground. Noise pollution from these activities and from open workshops became another growing problem.

In 1990, the government announced proposals to extend the Town Planning Ordinance to the New Territories to control the spread of urban blight. The landowners led by the Heung Yee Kuk have demanded compensation for any controls imposed. Despite the protests, the government was able to bring over 14,000 hectares of land outside the country parks, new towns and border areas under control. The effect is that while some parts are zoned for container dumps and other lucrative uses, an obvious concession to the landowners, anyone seeking to put to industrial use areas whose use is as yet unspecified must apply for a license.

An interesting development in the dispute between the traditional landowners and the environmentalists over extending the town Planning Ordinance to the New Territories was the intervention of the Chinese authorities, who voiced their support for the traditional landowners. Presumably the decision to take sides on this issue was dictated partly by their own economic interests and also because the traditional landowners have lent their support to the Chinese authorities on many occasions in the past when public disputes over Hong Kong occurred.

Another important development that is likely to be a major threat on the local environment is the Port and Airport Development Strategy (PADS) project. The building of a new airport at Chek Lap Kok off North Lantau is particularly worrying for two reasons: time and money. The huge budget HK\$167 billion has increasingly drained money from other areas of government, including the EPD, while the compressed timetable for completion in eight years ensures that environmental considerations would be short-changed. Environmental Impact Assessments (EIAs) are being done for the main projects, but with what depth and thoroughness it is impossible to tell at this stage.

The involvement of EPCOM, the government's appointed environmental advisers, in the PADS project has been largely peripheral. PADS is far too large and complex to be handled by EPCOM effectively. The result has been the most superficial rubber stamping of decisions already taken.

The projects will go ahead without any meaningful advice or input from the committee. EPCOM's only achievement to date has been to force the government to publish the various EIA reports.

EPCOM's involvement with other projects has been similar. One highly revealing thing is that EPCOM published its first ever report of the Committee's activities in March 1991 after almost two decades of operation. The Committee is far from being a pro-active and vigorous body exercising real power and influence in the interests of environmental protection. In reality both the topics for discussion and the timetable for discussing them are set almost entirely by the government. In general, EPCOM's role is confined to rubber stamping what the government has already done or decided. A classic recent case involved the West Kowloon Reclamation. EPCOM's first briefing on the project was at its meeting in May 1991. The Committee was informed that the proposed works would cause not only unacceptable levels of noise pollution to nearby residents, but also the real possibility of health epidemics from extreme water pollution. But at that point there was nothing EPCOM could do as the contract was already let and work due to begin within the month. The consultants' report was shelved.

CONCLUSION

Hong Kong's environmental protection effort has largely been government driven. There was clear recognition within government of the importance of protecting the environment as early as the late 1960s. There have been notable achievements from time to time, but the progress has been drawn out and slow. The main reason has been a political system dominated by consensus seeking. In recent years, the government's commitment to bring environmental protection as a key policy consideration in the decision-making process has been frustrated by the shortage of funds and by political uncertainty.

Hong Kong's environmental protection program requires a combination of forward planning strategies and pollution control measures. In a high density and high rise city like Hong Kong, planning alone cannot resolve all potential pollution problems. Planning is partly frustrated by uncertainty which makes it difficult to anticipate future needs and aspirations. For example, uncertainty about the future development of Hong Kong's industrial structure given the economic opportunities for outward expansion into China and its associated political risks have major implications for whether costly capital intensive facilities to provide waste collection and disposal infrastructure should be made and to determine what is actually needed. The same can be said for the installation of communal treatment facilities and the sharing of costs among users.

The formulation and implementation of environmental plans also suffer from the lack of an overriding authority and the shortage of land and funds. Environmental issues, by their very nature, straddle existing departmental boundaries. The terms of reference of the Planning, Environment and Lands Branch is not broad enough to have jurisdiction over areas like energy and transport. Expanding the terms of reference will allow environmental considerations to be better integrated with development.

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Implementation of the pollution control measures requires considerable land for the development of waste disposal facilities. Land devoted for this purpose may incur very high opportunity costs as it may not be used for other purposes. Revenue from auctioning land is an important source of revenue for government. Moreover, land supply in recent years has been limited to 50 hectares each year under the Sino-British agreement signed in 1985. To release

more land has to be negotiated with the Chinese authorities through the Sino-British Land Commission.

Securing sufficient funds is a major problem given the commitment to the PADS project. Privatisation of some facilities and charging user fees may provide part of the answer. One possible source of revenue is to collect emission charges or auction discharge permits. Not only can these be a valuable source of revenue for environmental programs, they can also be effective instruments in environmental management. With Hong Kong's history of free-market prosperity, there is no better place to introduce these alternatives. The market approach may not be the best solution for all kinds of environmental problems, but there is no reason to restrict environmental protection methods to only administrative and regulatory approaches.

ENDNOTES

1. See Simon S.C. Chau, "The Environment", in Richard Y.C. Wong and Joseph Y.S. Cheng, eds, *The Other Hong Kong Report 1990*, Chinese University Press, Hong Kong, 1990, 491-505.
2. See Environment Resources Limited, *The Control of the Environment*, A Report in 2 Parts, Hong Kong, 1975 and 1977.
3. See Hong Kong Government, *White Paper: Pollution in Hong Kong — A time to act*, Government Printing Department, Hong Kong, 5 June 1989.
4. The distinction between the control and market approaches to environmental protection is developed in Jo Ann Kwong, *Market Environmentalism: Lessons for Hong Kong*, Hong Kong Centre for Economic Research, Research Monograph 2, Chinese University Press, Hong Kong, 1990.

Sustainable Economic Growth IMPLICATIONS FOR GOVERNANCE IN TAIWAN

*Peter Shyan-Rong Chou, Raymond J.W. Lin and Ronald J.H. Liang**

By 1950, Taiwan's industrial development was in its early stage with the economy having a predominantly agricultural orientation. At this time, there was limited resource consumption and low population density. The pollution caused by economic activities was not serious, and it was easily absorbed by the environment or dispersed in the surrounding oceans. Therefore, it was not difficult to maintain a clean environment.

Subsequently, however, in order to stimulate Taiwan's economic growth, an industrial development strategy has been actively pursued. Eight economic construction plans have been carried out since 1953. As a result, not only has national income increased, but what was a trading deficit turned into a trading surplus by the late 1980s. Large amounts of foreign currencies have been accumulated, earning Taiwan a place among the four little dragons of Asia. Taiwan's economic development has often been offered as an example to other developing countries.

On the other hand, since environmental protection was ignored during the past 40 years of economic development in Taiwan, the environment has been damaged. Waste water, air pollutants and discarded wastes from factories are the most serious sources of environmental pollution. However, accompanying the increase in national income has been a growing consciousness about the need for environmental protection. At first, because the Government was not very

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responsive, due to budget and manpower limitations and incomplete regulations and laws, pollution kept getting worse. When the public gradually realised the ineffectiveness of governmental policy and actions, some of them became activists, even going so far as encircling particular factories to force them to shut down. Their demonstrations highlighted the conflict between current patterns of economic development and environmental protection.

Constant disputes over factory pollution had unfavourable economic and social impacts in Taiwan. The Government responded by establishing the Environmental Protection Administration (EPA) in 1987 to propose and implement environmental protection regulations. In addition, in the same year, it promulgated a policy of planning and caring for both environmental protection and economic development.

CURRENT STATUS OF THE ECONOMY AND ENVIRONMENT IN TAIWAN

Current status of economy

Growth of real per capita income and population. Real per capita income in Taiwan has increased more than 40 times since 1952, rising from US \$196 to US \$7,997 in 1990. The population, meanwhile, increased about 1.5 times, from 8,128,000 persons to 20,359,000 persons. Table 1 shows that the average annual growth rate of real per capita income in Taiwan in the last three decades has been approximately seven percent, one of the highest rates among the developing countries. It also shows that the average annual growth rates of population has decreased significantly in the last decade.

Table 1: AVERAGE ANNUAL GROWTH RATES OF REAL PER CAPITA INCOME AND POPULATION

Year	Real Per Capita Income	Population
1952-1960	4.0%	3.6%
1961-1970	7.1%	3.1%
1971-1980	7.3%	2.0%
1981-1990	6.9%	1.4%

Source: Council for Economic Planning & Development, *Taiwan Statistical Data Book*, 1991.

Industrial structure. Gradually, Taiwan's major economic outputs have shifted from primary industry (agriculture, forestry, fishery and livestock husbandry), to secondary industry (manufacturing, construction and utilities), and tertiary industry (commerce, banking and insurance, transportation and service). The change in industrial structure is indicated in Table 2.

Table 2: TAIWAN'S INDUSTRIAL STRUCTURE (GDP SHARE)

Year	Primary Industry	Secondary Industry	Tertiary Industry
1952	32.2%	19.7%	48.1%
1960	28.5%	26.9%	44.6%
1970	15.5%	36.8%	47.7%
1980	7.7%	45.8%	46.6%
1990	4.2%	42.3%	53.5%

Source: Council for Economic Planning & Development, *Taiwan Statistical Data Book*, 1991.

Expenditures on environmental protection. Total expenditures on environmental protection have risen from a total of about US \$25 million in 1983 (0.03 percent of the GNP), to about US \$503 million in 1990 (0.34 percent of the GNP). By the year 2000 the total expenditure is expected to reach US \$3.4 billion (2.2 percent of the GNP). Table 3 shows the actual and projected amounts for the years from 1983 to 2000.

Table 3: EXPENDITURES ON ENVIRONMENTAL PROTECTION

Year	Amount (US \$ Million)	GNP Share	Remarks
1983	25	0.03%	Spending by various levels of government.
1984	96	0.16%	Spending by various levels of government.
1985	145	0.23%	Spending by various levels of government.
1990	503	0.34%	Spending by various levels of government.
2000	3,400	2.20%	By both public and private sectors.

Source: Council for Economic Planning & Development, *Taiwan Statistical Data Book*, 1991.

Investment in pollution control equipment. The Government will spend a proposed budget of US \$10.9 billion on pollution control during the coming Six-Year National Construction Plan. Table 4 indicates the percentages of investment by private industry on pollution control equipment over a three-year period. According to the investment ratios, the private firms have been increasing the yearly investment on pollution control equipment.

Table 4: PERCENTAGES OF INVESTMENT IN POLLUTION CONTROL EQUIPMENT BY PRIVATE INDUSTRY

Year	Investment Ratio
1989	5.09%
1990 (Estimated)	5.37%
1991 (Forecasted)	7.16%

Source: *Research Regarding the Private Manufacturing Investment*, by the Directorate-General of Budget, Accounting and Statistics, Executive Yuan, 1991.

Current status of the environment

Air quality. There were approximately 5,930,000 tons of air pollutants emitted in 1990, which was an increase of 4.4 percent over the preceding year. The details obtained from the monitoring regarding the Pollution Standard Index (PSI) and air quality are shown in Table 5.

Table 5: STATUS OF AIR QUALITY IN TAIWAN (1987-1990)

Year	Good (0<PSI<50)	Fair (50<PSI<100)	Bad (100<PSI<200)	Harmful (PSI>200)
1987	19.15%	63.51%	12.18%	5.16%
1988	17.60%	67.31%	11.83%	3.26%
1989	17.24%	66.60%	15.07%	1.09%
1990	18.46%	65.20%	15.63%	0.70%

Source: EPA, *Environmental Protection's Statistic Yearbook*, 1991.

Water quality. Since the rivers and streams are short and steep in Taiwan, the amount of water flow and, hence, the pollution concentration changes rapidly with the rainfall and seasonal fluctuations. Nevertheless, high density of population and factories in Taiwan has resulted in serious pollution problems in the rivers. Table 6 shows the pollution status of Taiwan's major rivers.

Table 6: POLLUTION STATUS OF MAJOR RIVERS

Year	Not Polluted	Slightly Polluted	Fairly Polluted	Badly Polluted
1987	71.6%	5.8%	9.1%	13.5%
1988	67.2%	9.3%	10.4%	13.0%
1989	67.0%	7.4%	12.5%	13.1%
1990	65.2%	7.8%	15.7%	11.3%

Source: EPA, *Environmental Protection's Statistic Yearbook*, 1991.

Economic growth and environmental protection in Taiwan

In the history of Taiwan's environmental protection and economic development, the establishment of the EPA (see Figures 1 and 2) in 1987 is a great milestone. It reflected the Government's determination to pay much more attention to environmental protection. Although the *Air Pollution Control Act* was established in the mid-1970s, little progress was made in environmental protection because specific institutions and staff to implement the Act were lacking, and the main polluting industries were not serious about pollution control, because it would increase their production costs.

In view of these problems, the EPA continually updates environmental regulations, expands staff and budgets, and rigorously enforces regulations. Factories are fined and may be shut down when they are in violation of environmental regulations. The recent suspension of a government-owned paper and pulp factory sent shock waves to all industries.

Because of the more stringent regulations industries began to change. Factories whose attention was on "production first, environment second" began to consider investment on pollution abatement equipment seriously; some stopped producing products that became unprofitable due to investment in pollution control equipment; and others transferred such production overseas.

Initially, industries faced what appeared to be a situation of direct conflict between economic development and environmental protection, highlighted by neighbouring residents' forceful actions ("self-help") against polluting factories, ignoring the normal regulating procedures established by the EPA. Their occasional invasions into factories to force production stoppage caused escalating confrontations between environmentalists and factory owners.

However, in October 1987, the Government promulgated "Policy Guidelines for the Current Stage of Environment Protection" which set out policy on planning and caring for both environmental protection and economic development. Those guidelines also clearly indicate that if economic development causes adverse effects on the environment, the goal of environmental protection takes precedence. From that date on, the reconcilable relationship between economic development and environmental protection entered a new era.

ENVIRONMENTAL CONSIDERATIONS INTEGRATED INTO ECONOMIC DEVELOPMENT

Since a clean environment is much desired for social welfare and national modernisation, and is a world-wide concern, cooperation among institutions is needed to ensure the achievement of that goal. The EPA's efforts alone are not enough. In view of this, the Executive Yuan specifically established the "Environmental Protection Committee", chaired by the Vice Premier of the Executive Yuan. Involved are the heads of relevant ministries and agencies, experts and scholars. The tasks of this committee are:

- to draft strategies regarding environmental protection;
- to screen proposals for the implementation of environmental protection; and
- to coordinate and supervise plans related to environmental protection.

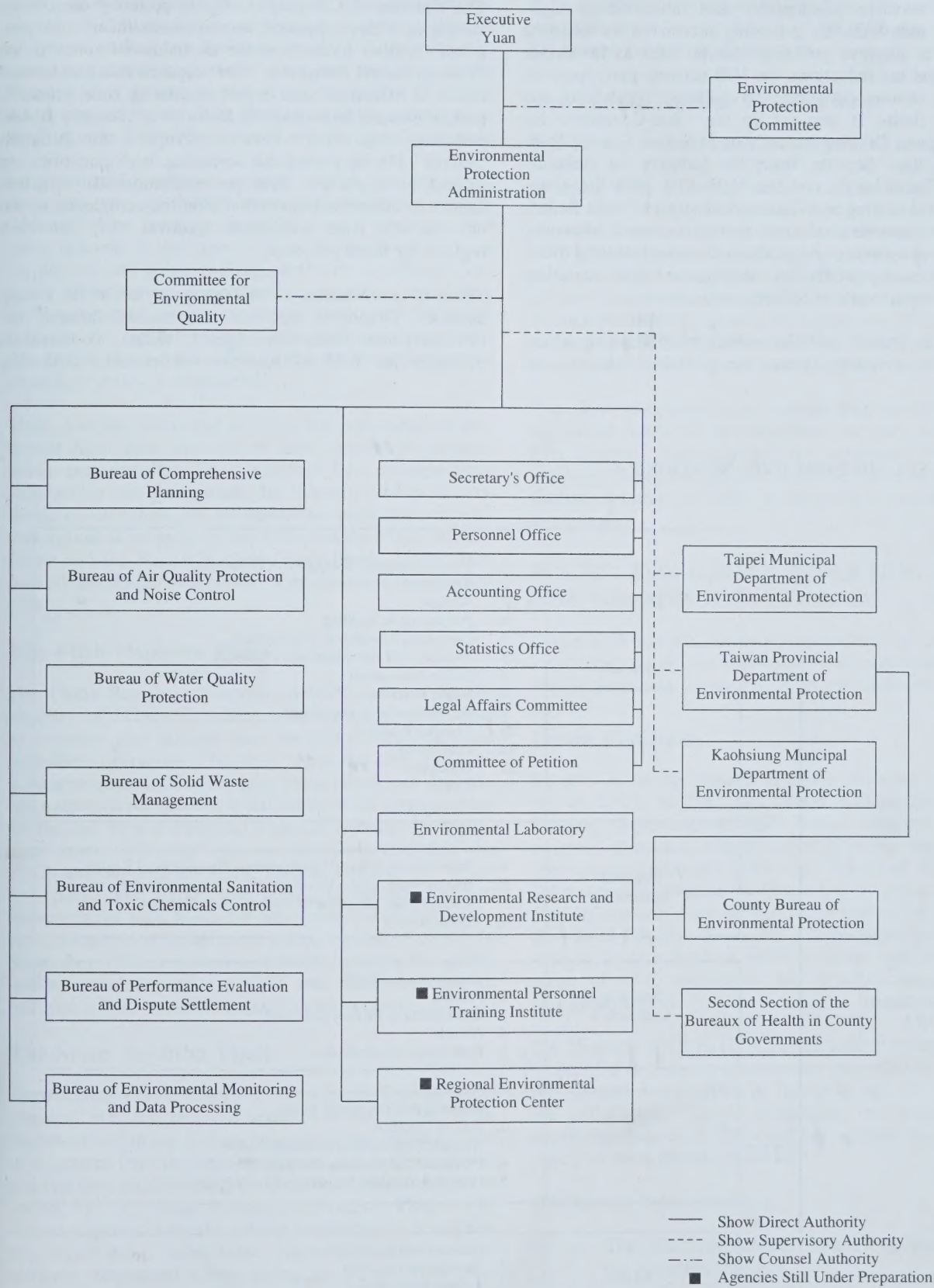
The Environmental Protection Committee of the Executive Yuan is regarded as the highest government body for environmental protection in Taiwan.

The EPA is nevertheless the chief government institution responsible for environmental protection. In enacting regulations, the EPA not only refers to those of the United States and Japan, partly because the majority of Taiwan industries import equipment from these countries, but also takes into account the valuable recommendations and opinions of industry representatives, legislators, specialists, scholars and environmental protection groups to make and revise the most appropriate, updated and workable regulations. During implementation, responses are collected from both industry and the public as references for future revision of environmental regulations.

Furthermore, to solve the related environmental protection problems, the EPA holds periodic meetings with different divisions. (Eighteen divisions from the central government and three from provincial and city governments are involved with respect to the Guidelines for Current Stage of Environment Protection.) For example, to improve the quality of the waste water discharged from animal husbandry operations, the EPA meets with the Agricultural Committee. One achievement of this consultation was to enact the "Adjustment Program for Pig-Raising" to reduce the number of pigs nation-wide, and, hence, lower the extent of water pollution. Also, to alleviate industrial waste pollution, EPA cooperated with the Ministry of Economic Affairs to set up the "Joint Sub-Committee for Assisting and Guiding Industry on Waste Pollution".

As for government agencies organised to receive public inputs on environmental questions, there are toll-free environmental protection hot lines, available 24 hours a day for receiving public input. There are also public hearings for industry, academia, government officials and the public in general to form common positions on environmental issues. There are also petition procedures for the industry to defend itself against charges on environmental matters. The Environmental Protection Agency is the main government institution dealing with these issues and it has branches at all levels of government.

Figure 1: ORGANISATIONAL CHART OF THE ENVIRONMENTAL PROTECTION ADMINISTRATION IN THE R.O.C.



Source: Environmental Protection Administration, Executive Yuan, Year Book of Environmental Statistics, Taiwan Area, the Republic of China, 1991.

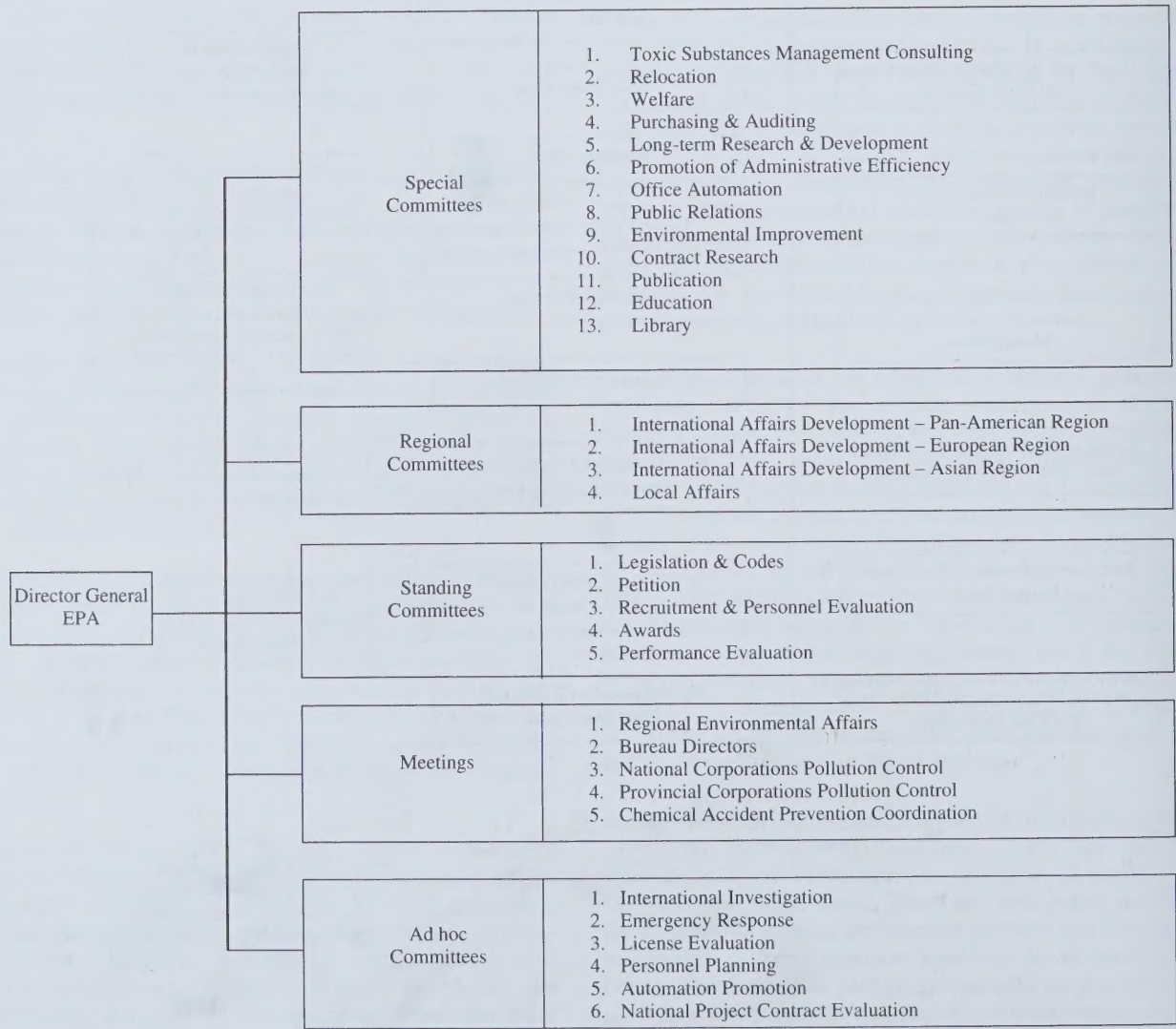
The Industry Development Bureau (IDB) of the Ministry of Economic Affairs, which oversees industrial development in Taiwan, also advocates environmental protection policies, such as selective development and inhibition of high-pollution industries. By providing incentives for assisting industry to improve pollution control, such as favourable finance and tax reductions, the IDB actively participates in enacting various environmental policies, regulations and emission limits. It also set up the “Sub-Committee for Assisting and Guiding Industry on Pollution Control Technology”, the “Service Team for Industry on Pollution Control Technology”, and the “IDB-EPA Joint Sub-Committee for Assisting and Guiding Industry on Waste Reduction”, for improving industrial pollution control. Moreover, it provides assistance and guidance on manufacturing methods, processes, production management and installing recovery equipments to reduce waste emission.

In 1988, to prevent pollution emissions, IDB set up a new prevention screening system for pollution sources, and

promulgated the “Highlights of Pollution Prevention Screening for New Factories”, in which there are two categories, A and B, for new potentially polluting factories. The factories of Category A, highly polluting ones, must submit an “Environmental Impact Assessment” (for proposed factories located outside an industrial zone), or an “Environmental Prospectus” (for proposed factories located inside an industrial zone, export processing zone, scientific park or existing factories); the factories of Category B, less polluting ones, must submit a “Proposal for Pollution Control”. Having passed this screening, both categories are subject to inspection from an environmental protection agency or authorised institution after the completion of the new factory. After inspection approval, they can then register for factory licenses.

There is coordination of environmental initiatives among agencies. Organised and initiated mainly through the Environmental Protection Agency (EPA), coordination meetings are held to hammer out policies, balancing

Figure 2: EPA ADVISORY ORGANISATIONS



Source: Environmental Protection Administration, Executive Yuan, *Environmental Protection in the Republic of China*, 1988.

environmental protection and other objectives. For example, to reduce lead pollution in the air from automobile emissions, the EPA and the Industrial Development Bureau (IDB) agreed to lower the price of lead-free gasoline, starting in 1989, to attract users and require imported cars to operate on lead-free fuel only by 1990. If there are still unresolved disputes, then the cases are presented to the Committee of Environmental Protection of the Executive Yuan, chaired by the Vice Premier, or even submitted to the Executive Yuan Meeting to be arbitrated by the Premier.

Environmental protection groups surely play the most important role in the environmental protection system. Although there are only about 20 groups, their contributions, in terms of the supervision of the implementation of regulations and policy-making, are very significant. Virtually all important environmental protection campaigns, such as damages, disputes or disagreements over the establishment of significant industrial facilities, have been directed by those groups. Their influence on environmental protection policy is substantial.

Many demonstrations and petitions for environmental protection have been initiated by such groups to promote public consciousness. Their activities have brought great pressure on the government. In Taiwan's history of economic development and environmental protection, opposition against three projects, the Fifth and the Sixth Naphtha Plants and the Fourth Nuclear Power Plant, vividly demonstrate the dominating power of environmental protection groups.

The Fifth Naphtha Plant

The China Petroleum Corporation (CPC), owned by the Ministry of Economic Affairs, was the target of protests by residents who suffered from harmful pollutants emitted from their operations. Therefore, when the CPC prepared to establish a new, Fifth Naphtha Plant, which met stringent environmental regulations, to substitute in the same location for the old, First and Second Plants, it aroused demonstrations from "self-help" groups. Residents encircled the CPC's existing refinery plant, blocked construction of the new plant, and argued that unless significant pollution improvements took place the new project would not proceed. Negotiation breakdowns caused years of delay. In September 1990, a mutual agreement between the neighbouring residents and the CPC was finally reached (it included a fund to subsidise local construction).

The Sixth Naphtha Plant

The Formosa Plastic Company, leader of the Taiwan petrochemical industry, received approval to set up the Sixth Naphtha Plant in the Yi-Lan Industrial Zone. However, due to objections from the local magistrate and residents, it was blocked from implementing the plan. During the negotiation period, Mr Y.C. Wang, President of Formosa Plastics Co, argued in person with the county magistrate on television, but to no avail. After three years of negotiations the company announced it was giving up the proposed plan and changing the location of the plant to Kuan-Yin. Similar to the situation concerning the Fifth Naphtha Plant, however, objections from the Kuan-Yin residents and environmental groups were vigorous. The plant was subsequently delayed for two more years. The Formosa Plastics Company finally gave up on the Kuan-Yin location, and in 1991

announced the change of location to Mai-Liao. One of the major reasons was the welcome from the local residents (mainly because the living standard there is quite low, due to their limited local industrial facilities). However, whether this plan could be carried out or not will depend on the Environmental Impact Assessment.

The Fourth Nuclear Power Plant

In 1980, the Taiwan Power Company (TPC), owned by the Ministry of Economic Affairs (MOEA), applied to the Ministry of Economic Affairs to build the Fourth Nuclear Power Plant at Kong-Liao. After 10 years, due to the strong objection from local people and some interest groups, the TPC still could not obtain the approval from the MOEA to begin the plant setup. In spite of the conditional approval of the Environmental Impact Assessment (EIA) by the Nuclear Energy Committee in September, 1991, the TPC still has to wait for agreement, through intense negotiations, from local residents and anti-nuclear power groups.

The above-mentioned cases indicate that establishment of significant industrial facilities have not only to pass the EIA approval, but also get the agreement from local residents. They have become precedents for resolving future disputes between economic development and environmental protection.

POLICY FOR OZONE DEPLETION AND THE GREENHOUSE EFFECT

Ozone depletion and the greenhouse effect are two significant concerns all over the world. Some measures taken in Taiwan have been adopted to cope with these two issues.

Ozone depletion

Because of the seriousness of ozone depletion due to the use of CFCs, in 1985 the United Nations Environment Planning Department (UNEP) invited delegates from 28 countries to meet in Vienna with a follow-up convention in Montreal in September 1987. The "Montreal Protocol on Substances that Deplete the Ozone Layer", signed by more than 20 countries, was an agreement that strictly regulates the use of CFCs in the world. A subsequent meeting was held in London in June 1990 to revise and enlarge the scope of CFC regulations and expedite the emission-reduction process.

The Republic of China (ROC) is not a party to the Montreal Protocol as it is not an UN member. Nevertheless, although the consumption of CFCs in Taiwan is only 0.5 percent of the global total, Taiwan appreciates the importance of restricting the use of CFCs and has adopted the following policy to meet global reduction:

(1) National Policy Direction

- (a) The ROC Government has a strong desire to join the Montreal Protocol.
- (b) The MOEA established a special task force on the Montreal Protocol in June 1989.
- (c) The EPA established a task force on the Montreal Protocol in April 1991.

(2) Revision of Related Regulations

- (a) The Department of Health has prohibited the use of CFCs in cosmetics since March 1983.
- (b) The Executive Yuan abolished a special act, which allowed the production of CFCs, in October 1987.
- (c) The MOEA issued the "Examination Operation Ordinance on the Import of CFCs Regulated by the Industrial Development Bureau of MOEA" and started to publish the annual consumption limits in August 1989.
- (d) The EPA has prohibited the use of CFCs in insecticides since March 1990.

(3) Control Measures

- (a) The ROC froze importing CFCs at the 1986 level of 10,159 metric tons a year, in January 1989.
- (b) The government formally listed both the specific codes on classification of imports and the export of eight regulated CFCs for regulatory and statistical purposes, in January 1989.
- (c) The government tries to maintain consumption at the 1986 level by limiting domestic production and imported quantities.

(4) Promotion of CFC-Related Technology

- (a) The Government requested the Industry Technology Research Institute to start research on CFC problems in 1988.
- (b) Since May 1989, a monthly CFC Newsletter has been issued to explain related governmental regulations, as well as to provide the most recent trends of CFC control and technical development.
- (c) Conferences are held to provide technical measures. It is expected that the domestic industries can increase their responsive capabilities.
- (d) Experiments of PE foaming by using HCFC-22 and the possibility of recovering CFC-113 from waste solvents have been undertaken.
- (e) The "Handbook on CFC Utilization" was published to provide complete explanations of how to utilise the regulated CFCs in acceptable ways.
- (f) The car industry recovers CFCs.

(5) Participation in International Activities

- (a) The ROC delegate joined the UNEP's Geneva Working Conference on the Montreal Protocol, in March 1990.
- (b) A delegate participated in the second conference on the Montreal Protocol in London, in June 1990.

- (c) A delegate joined the Second Meeting of the Ad Hoc Workshop of Legal Experts on Non-Compliance with the Montreal Protocol, in April 1991.

The greenhouse effect

The dramatic increase in the concentration of carbon dioxide following the industrial revolution has been identified as the main reason for the warmer climate of the earth. The UNEP, WMO and ICSU "Greenhouse Effect Gas (GHG) on Climate Change Conference", held in Australia in October 1985, paved the way for international strategies to deal with the greenhouse gas effect. And in view of the achieved records on CFC reduction through the Montreal Protocol, international cooperation seems to be a good model for carbon dioxide reduction.

According to the report of the 1990 Inter-Governmental Panel on Climate Change (IPCC), about 46 percent of GHG emission is due to energy use. Therefore, increased efficiency of energy use, energy saving, use of renewable resources (such as solar energy and wind power), afforestation and forest protection all help reduce the amount of GHG. Those measures have recently been highly advocated in Taiwan.

An international treaty on carbon dioxide emission control is expected to be signed in 1992 in Brazil. Although the ROC is not a member of the UN, and cannot be a signatory member, it will abide by the international treaty, regulate domestic emissions, set up systematic research on carbon dioxide inventory, make a plan of energy policy (such as energy-source ratio) and promulgate an energy saving policy in order to reduce carbon dioxide.

Overall, current measures for improving environment quality are the following:

- Environment Management: implementing the polluter-pays principle to reduce emission amounts and sources.
- Technology Development: R & D in the areas of the technology of low-pollution processes and products, and peripheral equipment.
- Energy Saving: technology and related regulations of energy saving, R & D of low-pollution energy use.
- Education for Environmental Protection: personnel training, knowledge promulgation, and the concept of people-environment co-existence.

CONCLUSION

All nations encounter the dilemma of economic development and environmental protection. But these two aspects may not be intrinsically opposite, since economic development leads to better living standards which, in turn, awakens people's environmental consciousness. As exemplified in the US, Japan and Europe, economic development and environmental protection can actually co-exist.

In the UN Conference on Human Environment in 1972, economic development was identified as a factor of degrading and upgrading the environment. Developed countries were urged to help developing countries protect the environment and develop abatement equipment by favourable trade

and technology transfer. Otherwise, developing countries may resort to measures unfavourable for the environment to provide basic living needs or to purchase foreign equipment. For example, some developing countries tend to earn their foreign exchanges by deforestation which causes excessive amounts of carbon dioxide, which in turn leads to the warmer global climate.

From the record of UN efforts, say, on mediating warring countries, it seems that supranational governance would be difficult. On the other hand, many successful results from the European Community are encouraging with regard to collective decision-making. Given the seriousness of the current pollution problems on Earth, supranational governance seems to be the only way out of a pollution-troubled quagmire.

To achieve the goal of both economic development and environmental protection, careful planning and not squandering natural resources is vital. Having taken care of the regulation of environmental protection, economic principles are applicable to environmental protection.

In 1987, the UN's World Commission on Environment and Development brought forward the concept of sustainable development, that is, economic development based on maintaining the adequacy of the supporting environment. Special attention to environmental sustainability is needed for significant projects. Balancing these two aspects becomes the underpinning of national welfare.

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difficult. On the other hand, many successful results from the European Community are encouraging with regard to collective decision-making. Given the seriousness of the current pollution problems on Earth, supranational governance seems to be the only way out of a pollution-troubled quagmire.

The Republic of China has been trying hard to participate in the global effort on environment protection, but this is hampered by the fact that they have been rejected as an UN member and access to UN environmental organisations is quite difficult for non-members. The ROC has a strong economic capability for alleviating pollution problems, both domestically and internationally. The ROC is expected to reach the standard of environmental protection existing in the developed nations by the year 2000. Environmental protection needs everyone's effort, and all UN members are urged to support the membership of the ROC in the United Nations.

REFERENCES

- Taiwan Institute of Economic Research, (1991). *Conference on the Issues and Strategies for Energy, Reference (I) and (II)*.
- Chiang, Ben-Gi, (1991). *Negotiating and Repositioning the Issues of Energy and Environment Protection*, Ching-Lin Think Tank.
- , (1991). *Negotiating and Repositioning the Issues of Industrial Development and Environmental Protection*, Midterm Report, Ching-Lin Think Tank.
- Economic Research Development, (1991). Council for Economic Planning and Development, *Influences of the Environmental Pollution Control on Industrial Development*.
- Environmental Protection Administration, (1988). Executive Yuan, *Environmental Protection in the Republic of China*.
- Environmental Protection Administration, (1990). Executive Yuan, *Systematic Analysis of Environmental Pollution Problems*.
- , (1991). *Year Book of Environmental Statistics, Taiwan Area, the Republic of China*.
- , (1991). "Strategy of the Republic of China for Stratospheric Ozone Depletion".
- Industrial Development Bureau, Ministry of Economic Affairs, (1991). *Year Book of Industrial Development in 1990*.
- Hao, Kuan-Mu, (1989). "Environmental Factors for Economic Development", *Industrial Pollution Control*.

Sustainable Development — Implications for Governance in Japan

Hiroshi Ouchi*

The period since the Second World War has been marked, in Japan, by successful economic recovery. Japan has however, experienced tragic pollution problems in many industrial areas, especially during the 1960s and 1970s, and has suffered heavily from pollution-related diseases; many lives have been lost. But Japan has learnt from its tragic experiences that prevention is far cheaper than treatment. Furthermore, it has found that there are no adverse effects on the macro-economy resulting from strict pollution control measures. Sustainable development is, thus, logically and practically feasible. These lessons can contribute much to solving the environmental difficulties of the world.

During the latter half of the 1950s, even though a number of pollution control measures were instituted, there was no clear position on this matter and it was difficult to institute strict regulations.

Also, the actual work of enforcing pollution control regulations was divided among a number of governmental departments, each of which promoted, at the same time, the interests of the industries under their jurisdictions. From today's vantage point, it can be said that it was not a system that could allow the flexible administration of stringent anti-pollution measures.

The first section of this paper provides an historical review of Japan's development and pollution problems, referring particularly to the tragic experiences in Yokkaichi and Minamata. It describes how both the private and public sector dealt with pollution problems and how a large amount of money was spent for damages and pollution control. Part two examines the effects of pollution control and government activity relating to environmental degradation on the macro-economy. The final section addresses the important concept of an environment-friendly economy and society, or sustainable development, and Japan's programs for global environment conservation.

JAPAN'S TRAGIC POLLUTION EXPERIENCES

High economic growth and pollution

In 1945, the Second World War ended with the defeat of Japan. Japanese reconstruction began in a land where the cities had been burned to the ground and the devastated earth had been stripped of its greenery. Expansion of productivity became an overriding priority, and the Japanese people worked night and day to achieve it. As a result, in less than a decade, the economy had recovered to the point where it had been before the war. Following this period, the economy grew with even greater vigour, with the average real economic growth rate reaching 8.8 percent during the last five years of the 1950s, holding strong at 9.3 percent during the first half of the 1960s, then rising to 12.4 percent during the latter half of the 1960s.

Japan's economic growth was fuelled largely by export of industrial goods and capital investment in production facilities. Through the multiplier effect, capital investment bred further capital investment and the economic growth rate soared. However, during this process, the composition of industry became weighted toward the heavy and chemical industries, in which the amount of pollutants produced per unit of production is higher than in other industries. Consequently, as fast as the GNP growth rate increased, the amount of pollutants produced throughout Japan increased even faster. Furthermore, even in 1965, the percentage of total capital investment that businesses allocated toward pollution control was only 3 percent — considerably less than it is today.

Japanese economic policies of the time were aimed at stimulating high economic growth through the process of eliminating bottlenecks. Public investment was thus much greater in roads, harbours, and other industrial infrastructural requirements than in parks, sewage projects, waste disposals or other environmental and recreational improvements.

One of these economic bottlenecks was urban overcrowding. As a consequence, new factory development was lured into the countryside, creating great environmental disruption. Harbours were dug, areas of the sea reclaimed, and rivers tapped for their water. In this way, large-scale industrial zones, with new and powerful production facilities, sprouted up one after the other throughout Japan.

During the latter half of the 1950s, even though a number of pollution control measures were instituted, there was no clear position on this matter and it was difficult to institute strict regulations. Also, the actual work of enforcing pollution control regulations was divided among a number of governmental departments, each of which promoted, at the same time, the interests of the industries under their jurisdictions. From today's vantage point, it can be said

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that it was not a system that could allow the flexible administration of stringent anti-pollution measures.

The result was that little consideration was given to environmental concerns by either government or the private sector. For that reason, pollution became increasingly serious as the economy expanded.

Case studies: damage versus pollution controls

Yokkaichi — a case of air pollution caused by sulphur oxides

In 1956, construction began on a petroleum refinery at an old navy fuel depot in Yokkaichi. By 1973, the facility reached a petroleum refining capacity of 505,000 barrels and an ethylene production capacity of 701,000 tons, making it one of the largest refineries in Japan.

Soon after operations began in 1959, residents of the area began to suffer from asthma and other complaints. This quickly became a widespread problem and, in October 1960, Yokkaichi City formed a Committee on Pollution Control to measure the severity of air pollution and conduct surveys on the health of residents. According to measurements taken between November 1963 and October 1964, the average concentration of sulphur dioxide in the Isozu district was eight times that of unaffected districts, with 3 percent of the average one-hour measurements exceeding 0.5ppm, and at times even exceeding 1ppm — ten times the current environmental standard of 0.1ppm.

From 1962, patients thought to be suffering from pollution-related health problems were examined free of charge at the Mie University Hospital and, from 1965, patients certified by the Yokkaichi Medical Review Board were entitled to have all medical expenses paid by the city. Meanwhile, the tragic circumstances of the patients were brought home to the public by cases of suicide and death. In 1972, the Tsu district court in Yokkaichi handed down a decision in favour of the plaintiffs which found all the defendant companies guilty of illegal actions.

Medical costs for the patients had been supported by private donations from industry and government funds. It became clear, however, that there was a need for a system which could provide patients with support for living expenses as well as medical expenses. Thus, in 1974, the Pollution-related Health Damage Compensation Law was implemented. This law directed companies responsible for pollution to bear victims' medical expenses and pay compensation for lost income. Yokkaichi qualified to receive aid, and the number of patients certified in the Yokkaichi area (Yokkaichi City and adjacent Kusu City) under this law reached a peak of 1,231 in 1975.

Meanwhile, reform programs such as relocation of housing, institution of buffer zones and establishment of a monitoring network were put into effect. The most pressing need was to supply low-sulphur heavy oil and to develop a flue gas desulphurisation apparatus. In 1969, Daikyo Petroleum,

one of the companies in the industrial zone, perfected an apparatus for making heavy oil with a sulphur content of 1.7 percent from crude oil with a sulphur content of 3 percent. Using the opportunity presented by the institution of environmental standards for SO2 in February of 1969, the Mie prefecture called on companies located there to use this low-sulphur heavy oil.

This and other measures such as the strengthening of emission standards stipulated by law, and the establishment of pollution monitoring systems, caused pollution control to begin in earnest. Although the amount of fuel used today in the prefecture is more than the amount used 15 years ago, the amount of sulphur oxides released into the atmosphere is less than one tenth of what it was.

As a result, 14.795 billion yen (US\$ 106 million)* is spent yearly on air pollution control measures in Yokkaichi. With investment of this magnitude, the industrial complex has had few problems with regard to pollution. Health damage expenses, which resulted from the lack of sufficient control measures in the early stages of industrial development, amounted to 1.331 billion yen (US\$ 9.5 million). The total projected one-year damage expenses amounted to 21.007 billion yen (US\$ 150 million), an amount greatly in excess of the air pollution control costs. Therefore, providing sufficient investment to prevent health damage is a logical choice in terms of monetary cost-effectiveness.

Table 1: DAMAGE EXPENSES VERSUS POLLUTION CONTROL COSTS — YOKKAICHI CASE

<i>One-year damage expenses</i>	<i>Million yen</i>	<i>One-year air pollution control costs</i>
Health damage expenses	1,331	14,795 million yen
Assumed one-year total damage compensation for a patient certification rate of 7.27% throughout the Yokkaichi City area	21,007	

Minamata — a case of health damage caused by organic mercury

In 1908, a manufacturer of nitrogenous fertilisers, now called Chisso Corporation, located itself in Minamata City. At that time, Minamata was a small scenic town of 12,000 people producing wood products and oranges. Many fishermen made their living in the Shiranui Sea between Minamata City and Amakusa Islands. By the 1920s, however, compensation for fishing damage due to the effluent from the Chisso factory was already an issue.

Minamata disease is a neurological affliction caused by the ingestion of seafood with high concentrations of a methyl mercury compound. The Chisso factory discharged this compound, a by-product of the acetaldehyde manufacturing process, into the Minamata Bay Area of Kumamoto Prefecture. The appearance of Minamata disease has been traced to May 1956 reports of patients with symptoms of a brain-related ailment, but later investigations confirmed that such patients first appeared around 1953. Immediately after these reports surfaced, the Minamata City Commission to Control the Strange Disease was established and the search for its cause began. It proved, however, to be extremely difficult to elucidate the cause of this disease.

* This and following currency conversions, unless otherwise noted, are based on 1989 values.

In 1957, Kumamoto Prefecture set up the Kumamoto Prefecture Commission to Control the Strange Disease and implemented measures to aid the patients and to deal with fishing damage. In 1959, the national Government used reserve funds to finance the investigation of the cause of the disease and to treat the patients. In the same year, the Food Sanitation Study Commission advised the Minister of Health and Welfare that Minamata disease is a toxic disease of the central nervous system caused by an organic mercury compound that is transmitted through seafood. It was not until 1962, however, that methyl mercury from the residue of production process of Chisso's Minamata plant was detected. In September 1968, 12 years after the first recorded appearance of Minamata patients, the Government announced its opinion that the cause of Minamata disease was the methyl mercury compound in the factory's effluent.

When acetaldehyde production reached levels of 36,000 tons in 1959 and 45,000 tons in 1960, the factory discharged 11 tons and 5 tons of mercury per year respectively. The mercury seeped into the environment and accumulated in aquatic life. In 1966, the concentration of mercury in clams, for instance, was 80 ppm. (In comparison, the total mercury count was 4 ppm in 1971.) By 1966, the factory had implemented a system which in principle stopped the discharge of mercury-containing effluent by completely recycling it within the plant. Factors that might result in the discharge of methyl mercury were finally eradicated in 1968 when the company ceased the production of acetaldehyde altogether.

Minamata disease produces sensory and physical coordination damage by afflicting the nervous system. When the disease occurred in the 1950s, there were tragic cases where many seriously afflicted patients died after body convulsions, and where babies were born with damage to the brain and physical coordination. It took much time to determine the cause of the disease and to create a framework of compensation for health damage.

In 1959, the Chisso Corporation signed a contract for compensation to the injured parties. Since the cause of the disease had not then been conclusively determined, the contract did not hold Chisso responsible for the damage. But after the Government announced its opinion on the cause of Minamata disease in 1968, the Minamata victims resumed moves towards obtaining a larger indemnity and, in June 1969, brought a suit against the company claiming compensation for damages. In 1973, the Kumamoto district court confirmed a court decision that the Chisso Corporation be held responsible for compensation on damages. Chisso and a group representing the Minamata patients finally signed a compensation agreement requiring the corporation to pay compensation directly to the people legally certified to have Minamata disease.

As of the end of March 1991, there are currently 2,248 people who have been certified patients of Minamata disease (of whom 1,004 have died). The Chisso Corporation, up to this period, has paid about 9.08 billion yen (US\$ 65 million) in compensation, and current annual payment is in the order of 3 billion yen (US\$ 21.4 million). In addition to certified victims, there are about 2,000 people claiming to have Minamata disease and suing for compensation.

Thus, more than 35 years after the discovery of the disease, the compensation issue has not been completely resolved.

A financial assessment of the damage associated with Minamata disease consists of three parts: health damage, damage from the polluted bay bottom, and damage to the fishing industry. What follows is a calculation of the average yearly payments for damage if the spillage of mercury had continued.

If health compensation is defined as the sum of the average yearly indemnity after FY 1974 a year after the 1973 compensation agreement between Chisso and the patients' association, the 1.184 billion yen (US\$ 8.5 million) Chisso was forced to pay after the 1973 trial, arranged as payments of principal and interest (7 percent) in equal yearly instalments over a 30 year period; and FY 1973 payment of 11.15 billion yen (US\$ 80 million) which was paid to the existing patients as a lump-sum compensation equivalent to the amount set by the compensation agreement, then total health damage costs come to 7.671 billion yen (US\$ 55 million) yearly. If bay pollution damage is defined as the average yearly cost of the sludge dredging projects, total bay pollution costs reach 4.271 billion yen (US\$ 30.5 million) per year. Finally, if fishing industry compensation is defined as the indemnity to the fishing industry arranged as payments of principal and interest (7 percent) in equal yearly instalments over a 30 year period, the total damage to the fishing industry amounts to 690 million yen (US\$ 5 million) yearly.

The total yearly cost of damages would thus be 12.632 billion yen (US\$ 90 million).

Pollution control costs were calculated by totalling the yearly average corporate investment in pollution control equipment, which was interpreted as average depreciation costs since 1955, plus additional operating costs and interest payment which was assumed to be fixed proportions of the annual investment. Their total amounted to 125 million yen (US\$ 0.9 million).

The comparison of yearly payments for pollution damage of 12.632 billion yen and that for pollution control of 125 million yen makes it very clear that pollution control undertaken at the early stages would have been good policy in terms of monetary cost-effectiveness. This said, however, regardless of why it took so long to elucidate the causes of Minamata disease, there is no way to reclaim the lives, health, and environment already lost.

Table 2: DAMAGE EXPENSES VERSUS POLLUTION CONTROL COSTS — MINAMATA CASE

One-year damage expenses	Million yen	One-year air pollution control costs
Health damage compensation	7,671	125 million yen
Bay pollution damage	4,271	
Fishing damage compensation	690	
Total	12,632	

DEVELOPMENT WITH POLLUTION CONTROL

No adverse effects on the macro-economy

The worsening of pollution in Japan from the mid-1960s prompted the institution of strict pollution control measures, spurred on by the enactment of numerous pollution-related laws by the "Pollution Diet" of 1970 and the establishment of the Environment Agency in 1971. Yet pursuit of these strict pollution control measures during the 10-year period between 1965 and 1975 had almost no effect on the macro-economy.

Investment in pollution control equipment by the private sector during this period totalled 5.3 trillion yen (US\$ 38 billion) at 1970 values. If macro-economic models are used to compare the state of the economy in 1975 with and without this investment, the following results reveal the minimal impact that this investment had on the macro-economy.

Note, for example, that the real GNP is estimated to be slightly higher as a result of implementation of pollution control measures.

The reason there were no adverse effects on the macro-economy resulting from these strict pollution control measures was that the economic cooling brought about by a rise in prices from pollution control measures was cancelled out by the buying effect of an increased demand for pollution prevention-related facilities. In spite of the fact that the measurement of national welfare in terms of GNP has its limits, if an assessment in terms of GNP is made, pollution control must be considered an investment activity. For example, the market for pollution control equipment in Japan around 1975 exceeded one trillion yen. Thus, the Japanese experience shows that it is not wise to focus on the negative aspects of pollution control spending.

Furthermore, implementation of strict pollution control measures often results in the development of technology which in the long run may prove beneficial to economic activity. For example, decreasing the amount of unburned carbon dust that comes from boilers also helps improve boiler heat management and allows a reduction in fuel costs. In the same vein, thorough sewage treatment measures usually mean thorough control of factory water use and reduced water bills.

To illustrate this point further, it should be noted that strict automobile emission regulations imposed in Japan prompted

improvements in gasoline-powered automobile engines, leading to the manufacture of clean-running gasoline-powered automobiles with high fuel efficiency. As a result, Japanese automobiles are being exported all over the world. The low nitrogen oxide-producing NSP kiln and the reduction method of iron manufacture which does not emit CO₂ (under development) are two other examples of economically beneficial technological development brought about by pollution control.

The role of governments

The role that the environmental administration bureau must play in preventing pollution before damage occurs and promoting healthy economic development is a big one and includes providing guidance to polluting companies concerning proper preventive measures. The Environment Agency is currently cooperating with an international joint project team to formulate pollution control proposals throughout the world.

The role of the administrative sector is specifically outlined in the following proposals:

- Monitoring of the environment (constant or periodic monitoring at important sites, mobile monitoring as necessary, gathering specimens for analysis upon return);
- Monitoring of the source of pollution (on-the-spot inspections and site measurements, gathering samples for analysis upon return);
- Research on the relationship between the source and environmental pollution (conducting simulation tests, etc.);
- Combatting environmental pollution and setting goals for the maintenance of a healthy environment;
- Formation of regulatory programs (formulation of alternative proposals for measures and conducting feasibility studies);
- Providing guidance to the pollution source (legislation of laws, educational activities, technological guidance); and
- Providing guidance concerning the construction of new facilities (inspection, technological guidance).

The following table shows the personnel and cost outlay currently required by the environment administration sector

Table 3: THE IMPACT OF POLLUTION CONTROL MEASURES ON JAPAN'S ECONOMY, 1975

GNP	approx. 0.9% increase
individual consumption	approx. 0.4% increase
private capital investment in equipment	approx. 7.4% increase
external surplus	approx. 300 billion yen decrease (1970 values)
consumer price index	approx. 1.2% rise
wholesale price index	approx. 1.7% rise

(all figures given in real terms)

Source: 1977 White Paper on the Environment

Table 4: POLLUTION CONTROL EXPENDITURE COMPARED BY CITY SIZE

City	Population	Annual fuel consumption (k1)	Personnel in local environment bureaus	Pollution control budget (million yen)	Annual Pollution investment
					(private sector) (million yen)
Hachinohe	242,607	1,478,200	16	32	7,352
Yokkaichi	277,991	3,722,869	23	71	8,260
Kitakyushu	1,025,654	6,515,380	51	329	6,271
Yokohama	3,220,350	10,700,000	170	2,228	32,936

for the implementation of these tasks in various Japanese cities. It is worth noting that these expenses are quite small compared to the cost of pollution control investment made by businesses. Most important is the training of staff, the procurement of necessary equipment, and the proper conduct of everyday administrative tasks.

More fundamentally, constitutional guarantees of basic human rights, freedom of thought, belief, speech and organisation are essential in the social and political process. The independent powers of government, the Diet and the courts must be exercised in the pursuit of equitable harmony of the society. To this end environmental laws and regulations are indispensable. Local autonomy can also play a strong and important role from the standpoint of local interests. Environmental impact assessments, public hearing and information disclosure are effective institutional tools to encourage public participation.

PROGRAMS FOR GLOBAL ENVIRONMENT CONSERVATION

Restructuring for an environment-friendly economy and society

In order to cope with the environmental problems that the world faces today, it becomes necessary to strengthen consistency between environment policies and those dealing with population, urbanisation, economics and energy. This in turn requires close examination of the economic and social structure of both domestic and international society and cooperation at the national and global level. Restructuring the economy and society for a sound environment is a theme of the UN Conference to be held in Rio de Janeiro, Brazil, in June 1992.

Too often, the policies, prices and investment decisions that drive the economy act directly against the requirements of sustainability. The environment is introduced into decision-making only after a problem has developed. At that late date, the options are usually limited to various add-on investments for end-of-pipe technologies to recapture emissions from waste streams and put them somewhere else. This leads to the still-dominant mentality that a conflict exists between a healthy economy and a healthy environment. Environment and development can obviously be mutually destructive. They can also be mutually reinforcing.

The environment and the economy must be integrated in our major institutions of decision-making: government, industry and the home. This is the most important condition for sustainable development. Too often, the policies, prices and investment decisions that drive the economy act

directly against the requirements of sustainability. The environment is introduced into decision-making only after a problem has developed. At that late date, the options are usually limited to various add-on investments for end-of-pipe technologies to recapture emissions from waste streams and put them somewhere else. This leads to the still-dominant mentality that a conflict exists between a healthy economy and a healthy environment. Environment and development can obviously be mutually destructive. They can also be mutually reinforcing. If they are to be the latter, integrated decisions have to be made at the front end of the development cycle when societal goals and policies are being set, not at the tail end after society and the economy have already incurred the costs of unsustainable development.

Japan has learned through our tragic experiences at Yokkaichi, Minamata and many other places that prevention is far cheaper than treatment and remedy. Furthermore, it has been concluded that the economic impact caused by pollution control is detectable, but can be manageable. Business management has played the important and socially responsible role in terms of environmental cost management, community and international relations and sound economic development, in addition to customer service. Those lessons should also be relevant to solving global problems.

All concerned nations and international organisations must cooperate with each other and design a framework for action to cope with global environmental problems. For the problems of global warming and ozone depletion, which no nations can ignore, a framework for international cooperation is indispensable. As an economic superpower, Japan has not only a great responsibility to the environmental protection of the Earth, upon which human survival depends, but also an ability to contribute to the resolution of these problems. The Japanese government, local public organisations, enterprises, and private groups together, must play a leading part in environmental protection.

Now we welcome the age of both slogans: "Think globally, act locally" and "Think locally, act globally".

Actions for global nature conservation

The Inter-Governmental Panel on Climate Change (IPCC) was established under the joint jurisdiction of World Meteorological Organization (WMO) and the United Nations Environmental Program (UNEP) in 1988. In 1990, the IPCC published a report that concluded that average global surface temperature will rise from 0.2 — 0.5°C / 10 years and sea-level will rise 3–10cm / 10 years by 2100 based on a business as usual scenario. Reduction of greenhouse gases emission at source and adaptation through afforestation/ reforestation, as the sink of CO₂, and other necessary measures were presented in the report.

Japan was the seventh largest CO₂ emitter in 1987 in spite of its high energy efficiency. Accordingly, Japan is challenged to stabilise, then reduce its green house emission gases. The Government of Japan enacted the global warming arresting action program in October 1990 to stabilise the emission of CO₂ on a per capita basis in the year 2000 and beyond, at about the same level as in 1990, through progress in the development of innovative technologies, etc. The Research Institute of Innovative Technology for the

Earth (RITE), which aims to achieve technological breakthrough, was established in 1990.

The Ministry of International Trade and Industry (MITI) has disclosed a 100 year inception plan, the Global Restoration Plan in 21st Century, with phased targets for research and development to stabilise, then reduce, CO2 emission more than 60 percent by 2100.

Concerning development aid programs, the guidelines for administrative procedures to implement environmental consideration in ODA was worked out in 1988 by the Japan International Cooperation Agency (JICA) jointly with the Overseas Economic Cooperation Fund (OECF) under the direction of the Ministry of Foreign Affairs. The draft was discussed with NGOs in advance of the final report. In 1989, at the Tokyo Conference of Global Environment, Prime Minister Takeshita committed Japan to increase environmental programs in ODA from 1989 to 1991 FY. The International Center for Environmental Technological Transfer (ICETT) was started to assist and solve environmental problems in developing countries in 1991 under the jurisdiction of Mie Prefectural Government and Yokkaichi City. The International Environmental Technology Center (IETC) is also soon to be established in Japan under the supervision of UNEP.

Environment ODA covers the scope of pollution control, nature conservation, forestry, human settlement (water supply, sewerage system, waste disposal) and natural disaster prevention. Three hundred billion yen of environment ODA pledged for three years has been already implemented at present.

The conservation of endangered wildlife under the jurisdiction of the Washington Treaty has been a crucial issue for Japan. Commercial whaling has been stopped in compliance with the International Whale Commission agreement. Ivory and sea turtles import were also stopped in compliance with the Washington Treaty agreement. Drift-net fishery has been suspended in the Southern Pacific in accordance with the UN debate. Harmony between development and environment in the context of nature conservation is becoming more popular.

CONCLUSION

Sustainable development is a key concept to save our community and our planet. According to Japan's experience during the era of rapid economic growth, there is no negative impact on the economy caused by pollution control measures. Prevention is much cheaper than treatment and remedy.

Governments must take strong initiatives to control pollution and save people's lives. Political decisions at national, regional and local levels should have important and effective mechanisms to harmonise development and environment. Local governments especially can play key roles because they stand close to people's interests.

The real actors to solve pollution problems, however, are enterprises and consumers. In the business-oriented societies of Asia, enterprise and consumer decision to save our natural environment are sometimes more crucial than government policy and mechanisms are needed to ensure that they think and act environmentally-friendly.

Finally, in order to cope with environmental difficulties, a healthy economy and advanced technology are necessary. Developed countries must give assistance and cooperation to developing countries including technological transfer related to pollution control.

REFERENCES

- Brochure of International Center for Environmental Technology Transfer.
- Brochure of Research Institute of Innovative Technology for the Earth.
- Government of Japan (1991). *Environmental Protection Policy in Japan*, Environment Agency.
- Government of Japan (1991). *Quality of the Environment in Japan 1991*, Environment Agency.
- Government of Japan (1991). *White Paper on Japanese Environment in 1991*, Environment Agency.
- Government of Japan (1990). *Japanese Performance of Energy Conservation and Air Pollution Control*, Environment Agency, October.
- Government of Japan (1990). *Action Program to Arrest Global Warming*, October.
- Government of Japan and The Tokyo Metropolitan Government (1991). *Environment Congress for Asia and the Pacific — Declaration and Report*, Environment Agency, July.
- Hashimoto, Michio. *Harmony Between Development and Environment — Japanese Experience as Everlasting Challenge*, (unpublished).
- MacNeill, J., P. Winsemius and T. Yakushiji (1991). "Beyond Interdependence", *A Trilateral Commission Book*, Oxford University Press.
- Study Group for Global Environment and Economics (1991). *Pollution in Japan — Our Tragic Experiences*, July.

The Challenge of Sustainable Development in South Korea's Growth-Oriented Political Economy

*Jin-Young Chung**

THE CONCEPT OF SUSTAINABLE DEVELOPMENT

The concept of sustainable development (SD) has been officially used in Korea: The Basic Law for National Environmental Policy proclaims that achievement of environmentally sound and sustainable development is a fundamental national goal. But, ironically, the concept is little known in the country and there has never been a systematic discussion of it. Accordingly, I use the concept in this article as it was defined by the World Commission on Environment and Development (WCED):

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (WCED, 1987, 43)

Underlying this notion of SD is the belief that the environment provides an infrastructure without which the economy could not survive. Human beings depend on nature for all materials and energy necessary to produce economic goods and services. For these inputs into productive activities to continue, ecological systems and processes must remain in operation and may also need to be reinforced. Biogeochemical cycles should continue to circulate materials in the biosphere, ecosystems should retain their capacities for the assimilation and degradation of wastes, and renewable resources should maintain their regenerative potential. It is in this sense that SD requires conservation of the natural environment in the process of fulfilling human needs in order not to hinder future generations from meeting their needs.

It may sound from these statements that the natural environment should be conserved and protected at any cost. But it needs to be emphasised that SD means reconciliation and harmony of development and environmental conservation. It should not be understood as meaning the sacrifice of the one for the other. This view is well-represented in the WCED's list of operational objectives of SD, which includes:

- (1) reviving growth;
- (2) changing the quality of growth;
- (3) meeting essential needs for jobs, food, energy, water and sanitation;

- (4) ensuring sustainable levels of population;
- (5) conserving and enhancing the resource base;
- (6) reorienting technology and managing risk;
- (7) merging environment and economics in decision-making; and
- (8) reorienting international economic relations (WCED, 1987, 49).

TOOLS FOR SUSTAINABLE DEVELOPMENT

How can this seemingly conflicting relationship between development and environmental conservation be transformed into a harmonious and complementary one? This is the question of means and tools for SD. What are some major options for advancement toward SD?

The most basic and important step toward SD is to change the development/consumption-oriented mind and life-style. People tend to love newer and better things. This attitude certainly contributes to maintenance of the conventional growth mechanism, but at the cost of the environment. Thus, when lifestyle is changed towards one that is harmonious with nature, the most fundamental precondition for sustainable development will have been achieved.

It is very difficult and time-consuming, however, to change people's minds and attitudes concerning life-styles without changes in external conditions. In other words, in order to effect changes towards harmony with environmental conservation, it is necessary to reform the relative price system of the goods and services produced and consumed by incorporating environmental costs and benefits into their prices.

From this perspective it seems plausible to argue that "sustainable development will not come into being unless all environmental sacrifices are fully reflected as costs to be charged to economic development" (F. Archibugi et al, 1989, 8-9). But this measure has a very difficult practical problem for its implementation. In order to put this idea into practice, it is necessary to develop a complete environmental account system which can be used as the basis for calculating environmental benefits and costs of any product. This is not a feasible task in the near future. Nevertheless, there is still a clear need to develop better accounting methods to record more accurately the impacts of economic activities on the natural environment. Better physical data systems and environmental impact assessments will facilitate the correct measurement of environmental benefits and costs, which in turn is a necessary step in our efforts toward sustainable development. Based on this enhanced knowledge the price system can be restructured to make

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life-styles more harmonious with environmental conservation.

Another fundamental prescription for SD is to reorient growth- and efficiency-oriented economic philosophies towards those that fully incorporate environmental considerations in devising and formulating economic plans and policies. Currently, in most countries, economic plans and policies are determined by developmentalists and efficiency-maximisers in key economic ministries such as those of planning, finance, industry and commerce, and agriculture. Environmental conservation and protection is not a central issue in economic decision-making and is usually taken care of by the peripheral ministry of environment or its equivalents. In order to conserve the natural environment suitable for the survival and well-being of future generations, as well as the present one, it is not enough to finance projects to reduce environmental damage and restore the damaged environment. What is necessary is to minimise the sources of environmental breakdown.

In order to arrive at this situation we need to reform the institutional structure of government and reorient and reform our socio-economic structures, nationally and internationally. Environmental considerations should be incorporated into every major economic policy. The demand for growth and income should be mitigated by reforms to distribute income more equally within and among nations. Competition for efficiency and dominance should be relieved through international cooperation to make international economic and political relations more complementary.

From this reasoning we can easily concur with MacNeill:

Sustainable development requires strong measures to change both the content and the quality of growth and equally strong measures to ensure a more equitable distribution of the proceeds of growth, nationally and internationally. (MacNeill, 1989, 19)

But it is certain that this state of development is far away. Inequalities in both wealth and power have never been significantly lessened, nationally or internationally. The decision-making structure and process for economic strategies and policies in most countries are dominated by key economic ministries whose decisions are usually at the source of the accelerating drawdown of our environmental resource capital. But the environmental impact of their decisions usually ends up with the responsibility of the poor and weak ministry of environment. The decisions taken by ministers of environment are usually focussed on —

the effects of development — health, property and ecosystem effects — and on reactive measures to deal with damage already done — measures to retrofit, to rebuild, replant, restore, reclaim, rehabilitate". (MacNeill, 20)

This does not mean that those decisions are not important or useful, but they are not the decisions that are necessary for change.

From the perspective of South Korea, and perhaps, in reality, for most countries, the options discussed so far indicate what is to be strived for and to be done in the

future. In practical terms, it is very difficult to expect that they are going to be achieved soon. Rather, a realistic recipe for resolving environmental problems in years to come lies in the reform of the environmental management system through strengthening environmental agencies in terms of budget and power, raising environmental standards and enforcing them more rigorously, and changing the regulatory system through incorporating incentives and utilising market mechanisms. These measures are unlikely ultimately to satisfy the requirements for sustainable development, but they are still important steps toward this objective and will be difficult enough for many countries.

Currently, in most countries, economic plans and policies are determined by developmentalists and efficiency-maximisers in key economic ministries such as those of planning, finance, industry and commerce, and agriculture. Environmental conservation and protection is not a central issue in economic decision-making and is usually taken care of by the peripheral ministry of environment or its equivalents. In order to conserve the natural environment suitable for the survival and well-being of future generations, as well as the present one, it is not enough to finance projects to reduce environmental damage and restore the damaged environment. What is necessary is to minimise the sources of environmental breakdown.

Ministries of environment are usually very weak and poor vis-à-vis other economic ministries and they can hardly influence the direction of the national economy. Although they often take responsibility for the environmental impacts of economic policies, they have little in the way of means and capacity to cope with environmental problems. Thus strengthening the Ministry of Environment and other related agencies can be an important instrument for improved environmental management.

Setting up environmental standards and enforcing them through legal and administrative means are a typical mode of managing the environment in most countries. Thus, raising permissible environmental limits and administering them more properly can have great impact on environmental protection. But this system of direct government regulation is known to have the difficulty of effective monitoring. Simply put, it is difficult to put the system into practice because polluters may easily cheat the regulator.

Due to this deficiency, there is a growing consensus for the necessity of using economic instruments for the purpose of conserving the environment (OECD, 1989; Hahn, 1989). By imposing charges, or providing subsidies or other incentives, the government can induce or coerce the society into taking actions that are conducive to achievement of sustain-

able development. This article is not the place for explaining specific economic instruments, but it is useful simply to list those often discussed in the literature — see Table 1.

**Table 1: ECONOMIC INSTRUMENTS:
A CLASSIFICATION**

Charges	Subsidies
— Effluent charges	— Grants
— User charges	— Soft loans
— Product charges	— Tax allowances
— Administrative charges	
— Tax differentiation	
Deposit-Refund System	Enforcement Incentives
Market Creation	— Non-compliance fees
— Emissions trading	— Performance bonds
— Market intervention	
— Liability insurance	

These changes in the environmental management system — strengthening environmental agencies, raising environmental standards and better enforcement, and adoption of various economic instruments — can be evaluated using the following criteria:

- (1) **Environmental effectiveness:** How effective are they in achieving environmental goals?
- (2) **Economic efficiency:** What is their impact on economic cost and benefit?
- (3) **Administrative efficiency and practicability:** What is the amount of information required, the level of administrative costs, and the likelihood of opposition?
- (4) **Concordance with institutional framework:** Are changes in the institutional structure and decision-making process compatible with the prevailing ones? (OECD, 1989, 18–20)

The rest of this article is composed of four sections. The next section discusses the context and nature of environmental problems in Korea. The following section describes a recent environmental episode in order to provide a snapshot of the operation of the Korean environment management system. The penultimate section provides a more detailed and systematic discussion of the evolution and current state of the environmental management system and policies in Korea. The concluding section proposes some changes for advancement toward sustainable development in the Korean context.

ECONOMY AND ENVIRONMENT IN THE KOREAN CONTEXT

South Korea has experienced some of the most rapid economic growth in the world in the last three decades. The average growth rate per annum between 1961 and 1990 was 8.7 percent, with GNP per capita increasing from US \$82 to US \$5,569 (current value) in the same period. This dynamic growth was accompanied by structural changes in the Korean economy and society. Until the early 1960s, Korea was a typical agricultural society with more than 60 percent of the population living in rural areas and the agricultural sector accounting for more than 40 percent of the gross national production. Now, close to 70 percent of Korean people reside in urban areas and more than 80

percent of employees are engaged in the secondary and tertiary sectors. The contribution of the agricultural sector to GNP has been reduced to less than 10 percent.

These changes in Korean economy and society are directly related to the environmental problems the nation has faced during this period. Expanding economic activities meant parallel growth of energy consumption: Total energy consumption increased from 17.9 million TOE (1 TOE = 10 Kcal) in 1970 to 65.8 million TOE in 1989, and per capita energy consumption from 0.55 TOE to 1.55 TOE in the same period. A number of large development projects — industrial estates, new residential towns, power plants, dams, roads, etc. — were carried out without serious consideration of their impact on the environment. Urbanisation, pursuit of convenient life styles, and increasing participation of women in economic activities among others have resulted in the rapid growth of demand for instant food and packed products. The number of automobiles grew in the last 30 years from less than 30 thousand to more than three million.

The environmental consequences of these developments have been direct and serious. It is reported that Seoul ranked third among the world's major cities in the degree of air pollution. The yearly average concentration of sulphur dioxide (SO₂) in Seoul's atmosphere, for instance, exceeded the ambient standard (0.05 ppm) throughout the 1980s. The major rivers in the country have been contaminated to such an extent that the conservation of water resources became a serious national concern and citizens' confidence in the quality of tap water has rapidly decreased.

While the growth of municipal sewage and industrial wastes has been very rapid, the capacity of existing landfill sites has been almost exhausted and it is now increasingly difficult to find new ones due to citizen opposition.

Responding to deteriorating environmental conditions, the general public's recognition of environmental problems has been significantly raised in recent years. For instance, a recent public poll, conducted by the Korea Anti-Pollution Movement Association (1991), found that 89.6 percent of the 1,500 respondents agreed that environmental pollution is serious or very serious. Another factor that forces the Korean Government to pay increased attention to environmental problems is: international pressure through international agreements such as the Montreal Protocol. Since the Korean economy is highly open, depending much on exports for its growth, international regulation of trade in terms of environmental standards can have great repercussions on Korean economic policies.

These internal and external sources of demand for change are, however, strong enough to change the Korean Government's orientation towards environment and development. For instance, the same poll quoted above reports that 96.9 percent of respondents did not have any experience in expressing their grievance or protesting against environmental actions of administrative agencies or business firms. This finding reveals the well-known fact in Korea that there is a great gap between consciousness and action with regard to environmental problems. In other words, heightened consciousness of environmental problems has not been properly translated into effective demand for government actions, let alone spontaneous behavioural changes on the part of private individuals and industrial firms. The Gov-

ernment and the general public are still heavily under the influence of developmentalism. Income and consumption, and efficiency and competitiveness, are predominant concerns of the whole country.

The same thing can be said about the international influence. Although there is a growing recognition of the potential threat of international environmental regulation to the health of the Korean economy, little active action on the part of the government and the private sector has been taken so far. Rather, the questions of how to improve international competitiveness and catch up with advanced countries capture national attention.

Can this state of affairs be changed toward a more balanced attitude between development and environmental conservation? If yes, how is it possible? In the following text, Korean efforts to conserve the natural environment will be reviewed and then necessary conditions for any significant advance toward sustainable development in the Korean context will be proposed. Before turning to a detailed description of the Korean system of environment management, however, a story of a recent environment incident will be related because it reveals some characteristic features of the Korean environment management system and policies in the context of overall Korean political economy.

Environmental regulation à la Korean mode: a recent episode

Recently an environmental incident drew widespread attention in Korea. It began with the failure of the Daegu Dyeing and Finishing Industrial Complex to comply with environmental limits for discharged waste water. The industrial complex, located in Daegu which is the country's third largest city and a major centre of the textile industry, is composed of 111 factories and does dyeing and finishing processes for 43 percent of the country's textile products.

But this industrial complex has had chronic problems in meeting environmental standards. Since its establishment in 1980, the industrial complex has been fined 13 times (a total of 7.8 billion won), for its discharges of waste water beyond environmental limits. In 1990 it was also ordered to improve its waste water treatment facilities to be able to comply with environmental standards. But it did not begin the construction of complementary facilities until June 1991 and completed the construction two months later. On 5 October 1991, Daegu Regional Environment Office examined the industrial complex's waste water and found that its COD was 288 ppm and BOD 270.7 ppm, both greatly exceeding the environmental standard of 100 ppm. With this result, the Environment Office imposed a heavy fine of 169 million won per day on the industrial complex and informed it that it would decide soon on whether the operation of the industrial complex would be stopped completely.

The Environment Office was immediately pressured by many powerful groups and agencies. Textile industries in the region expressed their fears about the negative impact of closing down the Dyeing and Finishing Industrial Complex. The City of Daegu could not but pay attention to the impact of the enforcement of environmental regulations on the region's financial and employment problems. Congressmen from the region criticised the Environment Office's

rigorous application of the law without considering the importance of the Industrial Complex in the regional economy. The Ministry of Commerce & Industry also opposed cessation of the Industrial Complex's operations by pointing out its negative impact on the country's textile industry.

Faced with these strong voices against its legal enforcement, the Regional Environment Office could not find any organised support for its actions. It was reported that the Office and the City of Daegu reached an agreement to allow the Industrial Complex to continue its operations. The extra-legal agreement that they arrived at was reportedly as follows: The Office would issue an order of the shutdown of operations to the Industrial Complex but would agree to accept a stay of execution if the Industrial Complex would apply for that to the Courts. Meanwhile, the Industrial Complex voluntarily decided to suspend some factories' operations to reduce BOD and COD levels. On 16 October, the Regional Environment Office re-examined the Industrial Complex's waste water only to find that the level of contamination was significantly reduced, and decided to reduce formerly imposed fines to 30 million won per day.

This episode shows how environmental problems are perceived and tackled in Korea. It is true, as was pointed out earlier, that almost all people believe that environmental preservation is one of the most urgent national tasks and agree that the Government should spend much more on the environment. But there is little consensus on who should pay and how necessary resources are to be mobilised. Furthermore, there is still a great discrepancy between people's perception and behaviour with regard to environmental problems. Governmental agencies are wavering and hesitant at best when confronted with environmental problems, contrary to their spoken commitment to rigorous application of environmental laws.

Now, to turn to the systematic description and understanding of the Korean situation concerning environmental problems and management.

SOUTH KOREAN RESPONSES TO DETERIORATING ENVIRONMENTAL CONDITIONS

Legal and institutional evolution

As in most other countries, the Korean Government's efforts to protect and conserve the natural environment do not have a long history. In the 1960s and 1970s, only a few elementary steps were taken for environmental protection. An important one was establishment of the green belt, or development limitation zone. Several broad and loose legal acts for environmental protection were made in the midst of the formidable drive toward economic growth. But they were hardly more than lip service to the environment.

In the 1980s, the right to live in a sound environment became a constitutional right, reflecting the seriousness of environmental problems in the country. The Government was obliged to try hard to improve environmental conditions. Thus some important measures were taken to tackle environmental problems, although the written declaration of environmental rights in the nation's highest law was not matched by any significant improvement of environmental

conservation. As can be seen in the following table, the Environment Administration, established in 1978 as the key administrative organ for environmental problems, had six regional offices and two public enterprises — KRRRC and EMC — as its affiliates put under its control.

Table 2: LEGAL AND INSTITUTIONAL DEVELOPMENT FOR ENVIRONMENTAL PROTECTION IN SOUTH KOREA

Environmental Laws

- Public Nuisance Control Law (1963)
- Environmental Preservation Law (1978)
- Basic Law for National Environmental Policy (1990)
 - Environmental Dispute Settlement Law
 - Air Quality Control Law
 - Water Quality Control Law
 - Noise and Vibration Control Law
 - Hazardous Chemical Substance Management Law
 - Solid Waste Management Law
 - Marine Pollution Prevention Law
 - Law for Resources Recycling

Governmental Agencies

- Pollution Control Division within Ministry of Health and Social Affairs (1973)
- Environmental Management Bureau with MOHSA (1977)
- Environment Administration under MOHSA (1978)
- 6 Regional Environment Offices under EA (1980)
- Ministry of Environment (1990)
 - National Institute of Environmental Research (1978)
 - Korea Resources Recovery and Reutilization Corporation (1980)
 - Environmental Management Corporation (1987)

The environmental impact assessment (EIA) system, first formulated in the former Environmental Preservation Law of 1977, started to be implemented from March 1981 on. Pollution charges began to be imposed in August 1983. The pollutants subject to pollution charges include SO₂, dust, offensive odours in air, and BOD, COD, SS, and heavy metals in water. The fines collected were used to constitute the Pollution Control Fund, which was established to provide low-interest, long-term loans for pollution control investments and to operate public environmental facilities. The Environmental Management Corporation administers this fund.

In 1987, the Environment Administration established a long-term master plan for environmental protection up to the year 2001. Gradual strengthening of various environmental standards and specific measures to achieve them were included in the plan with a time schedule. The estimated amount of investment required to carry out the master plan totalled to 17,085 billion won. For the purpose of the protection of the natural ecosystem, the Environment Administration started to carry out the first national survey of the natural ecosystem in 1986. With the aid of this survey the Ministry designated as natural ecosystem conservation areas places which accommodate well preserved natural ecosystems, plentiful natural resources, and natural habitats of endangered plants and animal species. Three natural ecosystem conservation areas have been designated so far: the Nakdong river area for immigrant birds; Mt Jiri for primitive polar plants; and Mt Daeam for high elevation wetlands.

It was from the beginning of the 1990s that environmental management in Korea entered a new stage. The Environment Administration under the Ministry of Health and Social Affairs was restructured and then transformed into the Ministry of Environment with the six regional offices

becoming Regional Environment Administrations. The unitary structure of the Environmental Preservation Law was changed into multiple, separate laws composed of the Basic Law for National Environmental Policy and special laws dealing with each special area of environmental problems. The Ministry of Environment has been very active in revising the existing system of environmental management and devising new instruments including the Law for Environmental Improvement Promotion, pollution induction charges, and a deposit-refund system. These increased efforts on the part of the Ministry of Environment have certainly met opposition from various corners of the government and the society, but found widespread, though dispersed, popular support.

In spite of the upgrade of environmental agencies in the government bureaucratic structure, there are still institutional problems in the Korean system of environmental management. It is the Ministry of Environment that has the key responsibility to formulate and carry out environmental plans and policies. But several other ministries also play important roles related to environment management. This raises one of the most serious problems for the Korean system. Although diverse government agencies have environment-related functions with their own jurisdictional privileges, the Ministry of Environment does not have the power to coordinate their actions from an integrated perspective for environmental conservation. Responding to this problem, the Government established and reinforced the National Council on Environmental Conservation, composed of the Prime Minister, economic ministers, and private specialists, and a working level committee, composed of deputy ministers, to facilitate cooperation and coordination among different agencies. But bureaucratic tugs-of-war and conflicts remain strong. Let us now turn to Korean efforts to mitigate pollution and conserve the environment in three specific areas of environment management.

Air quality management

Continued urbanisation and rising living standards, together with rapid industrialisation, have been accompanied by a rapid rise in energy consumption and emission of pollution gases. As a result, several large cities suffer from severe air pollution which often exceeds ambient air quality standards, especially in winter. A major portion of air pollutants comes from combustion of oil and coal, which comprises 82 percent of total energy use, and emission gases of motor vehicles.

In Korea's large cities, sulphur dioxide (SO₂) is one of the most serious air contaminants due to the widespread use of briquettes in homes and the lack of desulphurisation facilities. As a way of tackling SO₂ pollution, the Government has been trying to supply clean fuels such as liquefied natural gas (LNG) and provide low sulphur oil to large cities and industrial facilities. Major oil refineries in Korea have been requested to construct desulphurisation facilities to supply low sulphur oil.

Motor vehicle emission has become another major air pollution source due to the rapid increase in the number of motor vehicles. Consequently, the control of vehicle emissions has become a very important part of the air quality policy and programs. In 1987 the Government strengthened vehicle emission standards. To comply with new emission

standards, the producers of passenger cars were required to equip their products with exhaust purification systems. Car owners were also required to use unleaded fuel only.

Water quality management

It has been often said in Korea that this country was blessed with clean water in its streams and rivers. But the situation has changed very rapidly in the process of economic modernisation. Now the country faces serious contamination in the major water supply sources. Accompanying urbanisation and industrialisation, the volume of waste water has increased at an annual rate of 7 percent in sewage and 20 percent in industrial waste water. As a result the BOD levels of the four major rivers in the country has reached approximately 3–6 ppm, although some improvements have been made in recent years, especially in the case of the Han River, thanks to strengthened counter measures.

The major source of water contamination is municipal sewage. Of the total pollution in the rivers and streams of the country, approximately 70 percent is from sewage and 30 percent is from industrial waste water. There have been increased efforts to construct new sewage treatment plants and improve existing ones, but the facilities still treated only 31 percent of the municipal waste water as of the end of 1990. According to the government plan, additional sewage treatment plants will be constructed in urban areas with the target of treating 65 percent of municipal sewage by 1996.

Another target area requiring intensive government actions to improve water quality is the treatment of industrial waste water. Nationwide, approximately 6.5 million cubic meters of the waste water is discharged daily from 11,200 point sources. The typical mode of government regulation concerning industrial waste water is to monitor polluters through visits by the Ministry of Environment's special inspection teams and the personnel of the Regional Environment Administrations. In addition to this regulatory measure, the Government has installed, and has been helping the private sector to install, waste water treatment plants. In the case of government-constructed industrial complexes, the Government has installed and brought into operation the facilities through the Environment Management Corporation. When private firms plan to establish waste water treatment plants, they can apply for soft loans from the Pollution Control Fund.

Due to rising concern about the quality of tap water, special attention has been given to the protection of water supply sources. The largest sources of water supply in Korea are the Paldang and Daechung reservoirs which provide drinking and industrial water for the 18 million people and industries in Seoul and the central region. In order to preserve Paldang and Daechung's water quality to the potable supply-class I level (that is, BOD-less than 1 ppm), the Ministry of Environment, in July 1990, designated their basin areas as the Special Water Pollution Control Areas. Various special measures to protect the water quality of these reservoirs are being developed. In regions which have a direct impact on the reservoirs, land-use alteration, hazardous waste water discharge facilities, and resort facilities are strictly prohibited and construction of waste water treatment plants, including municipal sewage and livestock wastes, is under way.

Management of solid wastes

There are three ways to treat solid wastes: landfilling, incineration, and recycling. In Korea, the average daily generation of municipal and industrial solid wastes amounts to 78,000 and 60,000 tons respectively. Ninety-four percent of the municipal waste and 35 percent of the industrial waste are disposed of by means of landfilling. It is not easy, however, to acquire new landfill sites due to the strong opposition from residents. In face of this situation, the Government has been trying to develop a massive landfill site for each of eight regional zones.

Considering the difficulty of finding landfill sites, incineration and recycling of wastes are preferable options. However, there are only two incineration plants now in operation in the country. The Government plans to construct more combined heat and power plants, especially in newly-created residential towns. It is expected that approximately 27 percent of the nation's solid wastes will be treated at incinerators in major cities in the country by 2001.

The merits of recycling are two-fold: it recovers valuable resources and reduces the amount of wastes. Thus, the Korean Government has been trying to increase the rate of waste recycling by persuading and educating the public to cooperate with the separate collection system and by providing industries with economic incentives, including tax reduction and financial assistance. However, there is little support or cooperation on the part of the general public to classify wastes into different categories (that is, combustible, recyclable, etc.) for different treatment purposes.

For the treatment of hazardous industrial wastes, the Government constructed two hazardous waste treatment plants in Hwasung for the central region and in Ulju for the southeastern region in 1986 and 1989 respectively. These plants are operated by the Korean Environmental Management Corporation. Another plant is now under construction in Kunsan for the southwestern region.

Some important recent environmental efforts

In recent months there have been several important efforts to reform the current system of environmental management. The Deposit-Refund System for Wastes, effective from the beginning of 1992, requires domestic producers and importers of six types of products — containers (bottles and cans, etc.), batteries, tyres, lubricating oil, household electronic appliances, and plastics — to deposit a certain percentage of their prices in the Resources Recovery and Reutilization Corporation (KRRRC). The deposit money will be refunded according to the ratio of their recovery of waste products. Originally this system was to be implemented by 9 October, 1991, with seven types of products included — the six listed above and automobiles — and with higher rates of deposit to their prices. But the Ministry of Environment met strong opposition from other ministries and changed its original plan in the process of policy consultation.

Another important environmental measure under consideration for implementation in 1992 is the Pollution Induction Charges system. Those buildings and facilities that induce pollution are going to be subject to charges. Originally hotels, department stores, large-scale restaurants, and automobiles were selected by the Ministry of Environment to

be the objects of such charges. The resources to be collected from these charges were to be used as funds for the mid-term environmental improvement plan. But, as in the case of the deposit-refund system, the Ministry of Environment has no choice but to reduce the number of the objects for charges as a result of opposition incurred during the policy consultation process with other economic ministries.

The basic objective of the above two systems is to raise revenue for rising environmental investments. To facilitate the introduction of these new measures, the Ministry of Environment is trying to enact the Environmental Improvement Promotion Law and the Law for Special Accounts for Environmental Improvement. From the recognition that the obtainment of environmental investment funds is the key to the success of the mid-term environment plan, the Ministry of Environment put a great emphasis on the need to adopt the polluters' pay principle in proposing the two laws (see Ministry of Environment, news release, 1991. 7. 30). According to the plan, the gross public sector investment for environmental improvement would rise to 0.3 — 0.5 percent of GNP during the 1991–95 period. It is a very ambitious investment plan, considering the fact that the central government's average environmental investment during the 1985–90 period was 0.14 percent of GNP. But, with the expected reduction of revenue from the two economic measures mentioned above, the plan can hardly materialise unless the budget for the environment is considerably increased and new revenue-producing economic measures are adopted.

Some proposals for sustainable development in the Korean context

It is certain that environmental problems are quite serious in Korea. And the general public have been well aware of this fact. As we have seen so far, the Korean Government has significantly increased its efforts to protect and conserve the environment. But there are tremendous things to be done in the shift of the Korean political economy toward sustainable development. There are many things that the Korean Government can and must do in the years to come for any significant progress toward ecologically sound development to take place. There are also some very important steps that Korea can hardly take without changes in international economic relations. The remainder of this article will be devoted to discussion of some necessary measures to be taken for any meaningful advancement toward sustainable development from the Korean perspective.

(1) Most basically, people's attitudes concerning the relationship between their life and the natural environment must change. Traditional oriental philosophy taught that life harmonious with nature, and following the principle of the heaven, is the happiest life. But modernisation, industrialisation, and Westernisation made this old teaching obsolete. Nowadays Koreans pursue happiness in terms of the quantity and quality of goods and services they consume. In addition, the period of rapid economic growth raised the level of expectation enormously. They now tend to think it natural that they will earn and consume more tomorrow than today. In this kind of social environment, it is very difficult to expect any significant change toward sustainable development. In order to come out from this situation,

Korea needs social and political reforms, in addition to strengthened environment education. Inequalities in income and wealth should be reduced so that basic needs of the poor are to be met. The heightened public consciousness of environmental problems must be translated into a political voice. Civic groups for environmental conservation are to be encouraged. These changes can be accelerated by political reforms for the establishment of a consensus-building political system, instead of a conflict-prone, divisive one.

- (2) For the formulation and implementation of effective environmental policies and plans, the power of the Ministry of Environment in the institutional structure of government should be strengthened. It can be safely said that the Ministry is currently a peripheral agency within government in terms of the size of budget and its influence in the decision-making process vis-à-vis other economic ministries. The budget of the Ministry of Environment has been less than 0.5 percent of the whole government budget. Environmental investment of the whole central government remained 0.12 to 0.17 percent of GNP in the 1985 to 1990 period. There is no doubt that the Ministry is too weak to carry out its environmental policies in face of opposition from other economic ministries.
- (3) Related to the above task, environmental considerations should be integrated as central elements into economic policy-making and coordination. Although the Ministry of Environment has the right to evaluate the impact of major projects on the environment through the environment impact assessment system, it can be safely said that this requirement has not been a powerful instrument, but a mere formality up until now. For instance, the Ministry could not stop other government agencies from constructing office buildings and landfill sites within the green belt (development restriction area).
- (4) The Government's environment agencies should be enlarged and empowered with more environmental specialists involved and playing active roles. The total number of personnel presently in the Ministry, Regional Environment Offices, National Institute of Environmental Research, and Central Committee of Environmental Dispute Arbitration is only 1,233. There are very few environmental specialists within the government, as well as in the society as a whole. Regional offices are not in a position effectively to monitor polluters and work for environmental improvement through technological advice and training and education programs.
- (5) The system of government environmental regulations should also be reformed. Currently the main framework of government regulations lies in direct control: The Government sets environmental standards and those who violate the limits are punished, financially or physically. This way of managing the environment is known to have many defects. They include monitoring problems, corruption of inspectors, and the lack of incentives to induce polluters to improve environmental technology.
- (6) The implementation of domestic efforts for the environment can be promoted in a favourable international environment. For instance, an international mechanism

to facilitate the transfer of environmental technology from advanced countries to developing countries may greatly help the latter to fight against their environmental degradation. It is certain that the development of environmental technology will contribute to the reconciliation of development and environment. International agreements to raise environmental standards applicable to international trade will also contribute to the slowdown of global environmental degradation. In the current regime of international trade, international competition means efficiency and productivity. Thus, competing countries are induced to do whatever they can do to improve their competitiveness. In this kind of trade regime, it is impossible to expect international cooperation or collective action for the improvement of the global environment. But it should be pointed out that the reorientation of international trade through incorporation of strengthened environmental requirements needs to be supplemented by measures to enhance developing countries' abilities to meet international environmental standards. If environmental technologies are monopolised by a few developed countries and international environmental standards are raised, then most developing countries will suffer greatly, worsening international distribution of income.

- (7) In order to achieve global cooperation for sustainable development, international inequalities in income and development level should be reduced. Poor countries have no choice but to put priorities on rapid growth. Considering the low level of technological development

in those countries, increasing economic activities will certainly lead to worsening of environmental conditions. Thus we need to find ways to mitigate international inequalities so that poor countries and poor people can meet their basic needs without jeopardising the environment.

REFERENCES

- Archibugi, F. et al., (1987). "The Challenge of Sustainable Development." In F. Archibugi and P. Nijkamp (eds) *Economy and Ecology: Towards Sustainable Development*. Dordrecht, The Netherlands: Kluwer Academic Publishers.
- Hahn, R., (1989). "Economic Prescriptions for Environmental Problems: Not Exactly What the Doctor Orders." In J. Shogren (ed.), *The Political Economy of Government Regulation*. Boston: Kluwer Academic Publishers.
- Lélé, S., (1991). "Sustainable Development: A Critical Review." *World Development*, Vol.19, No.6.
- MacNeill, J., (1989). "'Our Common Future,' Sustaining the Momentum." In J. Shogren (ed.), *The Political Economy of Government Regulation*. Boston: Kluwer Academic Publishers.
- Ministry of Environment (Republic of Korea), (1991). *White Papers on Environment, 1990*. Seoul: Ministry of Environment.
- , (1990a). *Mid-term Comprehensive Plan for Environment Preservation, 1991–1995*. Seoul: Ministry of Environment.
- , (1990b). *Environmental Protection in Korea*. Seoul: Ministry of Environment.
- Organization for Economic Cooperation and Development, (1989). *Economic Instruments for Environmental Protection*. Paris: OECD.
- World Commission on Environment and Development, (1987). *Our Common Future*. New York: Oxford University Press.

Organising Government for Sustainable Development

RECENT CANADIAN EXPERIENCE

A.R. Dobell*

It will be essential in the decades ahead to integrate environmental decisions and economic decisions, for there is, in Commissioners' view, no ultimate conflict between economic development and the preservation and enhancement of a healthy environment and a sustainable resource base Commissioners seek a sustainable form of development that acknowledges the interdependence of society, the economy and the environment at both the national and international levels.

— Royal Commission on the Economic Union and Development Prospects for Canada, *Report*, Volume 2, pp 507, 524, 1985

As a small open economy built upon a vast resource base, Canada has developed substantial concerns about resource management and the principles upon which stewardship of a social heritage of natural resources can be reconciled with efficient exploitation of those resources in a competitive trading environment. Governments and people in Canada embraced the concept of sustainable development with enthusiasm, and moved quickly toward institutional measures designed to implement some of the recommendations set out in the report of the United Nations Commission on Environment and Development (the Brundtland Commission).

In this article, the actions of Canadian governments for this purpose are briefly examined in three categories:

- action to improve analysis and information for decisions within government;
- action to deepen consultation by governments;
- action to restructure government organisation and machinery to achieve better integration of environmental and economic concerns.

From a review of developments in each of these categories, the following conclusions are drawn:

- substantial progress in statistical indicators and accounting measures is possible, but the prospects for dramatic improvements in comprehensive analysis should not be oversold;
- consultative processes and review procedures have been substantially enriched, but with mixed results, and with the risk of paralysis in decision-making and implementation not to be overlooked;

- the restructuring of government undertaken to date has been significant in organisational terms, but has not yet achieved any substantive integration of environmental and economic considerations, and has not achieved any meaningful priority for environmental concerns in fiscal or economic decisions.

But as a result of all this activity, social and individual values are shifting, and public awareness of environmental concerns is rising dramatically. Pressure for improved standards of environmental performance is therefore mounting on both governments and business, and effective accountability both for improved policies and tighter administration has been considerably increased. Public pressure is rising for some effective social ground-rules or guidelines which will assure some degree of environmental responsibility in a system increasingly moving toward economic instruments for management of natural resources.

This evolution in public attitudes is briefly sketched in the balance of this article. In essence it tells the story of an attempt to introduce the value of sustainability, or a new environmental ethic, into the political culture of a society. How far this goal can be achieved in a modern market economy, and how one can know when the battle has been won, remain open questions. In order to deal concretely with these very general and abstract questions, we take the particular case of Canada as an example.

A BRIEF BACKWARD GLANCE

In Canada there is (within a limited circle, of course) strong interest in the forthcoming "Earth Summit", the UN Conference on Environment and Development, scheduled to take place in Brazil in June 1992. Some of that interest can be traced back to the national "Resources for Tomorrow" conference held almost precisely 25 years earlier. The environmental awareness awakened at that time carried on to the concerns for environmental protection highlighted at the 1972 Stockholm conference, and then into the 1980 World Conservation Strategy circulated by the International Union for the Conservation of Nature. Recognition of the need to see environmental concerns more broadly within the context of economic development and resource management grew through the early 1980s, and in its 1985 Report, the Royal Commission on the Economic Union and Development Prospects for Canada (the Macdonald Commission) noted its conviction that there is no necessary

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conflict between environmental and economic goals and, indeed, that both sets of concerns had to be developed in harmony and pursued simultaneously in the process of economic development.

This goal of sustainable development was subsequently enunciated effectively by the Brundtland Commission, strongly supported by Canada, which had contributed not only financially to the work of the Commission, but intellectually through the work of Maurice Strong a member of the Commission itself, and Jim MacNeill, a Canadian working at OECD who became the Secretary-General on the staff of the Commission. Maurice Strong, has carried on to serve as the Secretary-General for the UN 1992 meeting, thus providing an underlying continuity from the work of the Stockholm meeting whose secretariat he headed two decades earlier (and which at that time provided forceful leadership unprecedented in UN activities).

The Brundtland Report was well-received in Canada. Even before it was published, a National Task Force on Environment and Economy was established by the Canadian Council of Resource and Environment Ministers to determine how its orientation and spirit could be reflected in concrete policy action by both federal and provincial governments as well as private sector actors. (The tale of this Task Force and the unexpected degree of consensus it achieved despite its very diverse membership is an interesting story in itself and marks something of a milestone in government appeal to consensus-seeking consultation processes in Canada. (See the reviews by Crerar (1987) and Malley and Watts (1989) cited in the bibliography.))

This present paper can thus be seen in part as a review of the measures governments in Canada have taken to respond to the general interest in sustainable development reflected in the Task Force Report, and to the specific recommendations laid out by the Task Force in relation to the machinery of government and public decision processes in Canada necessary to ensure attention to the goal of sustainability.

(A striking expression of this Canadian interest can now be found in the recent proposal of the Government of Canada to entrench the principle of sustainable development in the proposed new Constitution for a renewed federation. The Government's proposed "Canada clause", intended to reflect fundamental features of Canadian aspirations and Canadian identity, includes "a commitment to the objective of sustainable development in recognition of the importance of the land, the air and the water and our responsibility to preserve and protect the environment for future generations; . . ." (*Shaping Canada's Future Together — Proposals by the Government of Canada*, September 1991).)

The recommendations of the National Task Force on Environment and Economy are based on the premise that one can have sound and sustainable development through the improved technology and increasing wealth generated by continued economic growth. The Task Force assumed also that in this process economic and environmental planning and management must be — and can be — effectively integrated. The recommendations built upon these hypotheses can be summarised as follows:

In the short term,

- (i) Round Tables on the Environment and Economy should be established in all provinces and territories and at the national level to bring together senior decision-makers from the many diverse interests concerned with sustainable development, to serve as a cooperative consensus-building mechanism dealing in an integrated manner with economic and environmental issues;
- (ii) These round tables should develop action plans for improved decision-making and implementation of the goals of sustainable development;
- (iii) Each jurisdiction should develop a conservation strategy to guide further action.

... social and individual values are shifting, and public awareness of environmental concerns is rising dramatically. Pressure for improved standards of environmental performance is therefore mounting on both governments and business, and effective accountability both for improved policies and tighter administration has been considerably increased. Public pressure is rising for some effective social ground-rules or guidelines which will assure some degree of environmental responsibility in a system increasingly moving toward economic instruments for management of natural resources.

In the longer term,

- (i) Canada's governments (cabinets) and corporate boards must assume leadership with respect to social and economic planning which promotes and institutionalises economically and environmentally sound development;
- (ii) Improved analytical tools and techniques must be developed to provide better understanding of the linkages between environment and economy, and the possibilities for economic instruments and incentive systems to promote sound development;
- (iii) Government and business leaders must assume new responsibilities in communications and educational activities (particularly of children), and in assuring that Canada fully meets its international obligations in promoting sustainable development.

These recommendations were directed principally at what the Task Force saw as the greatest weakness in Canada's efforts to achieve sustainable development, namely a fragmented sectoral approach to planning and development. And, as will be discussed below, the real centrepiece of

their recommendations was the proposal for Round Tables everywhere, as new institutions for consultation and consensus-seeking among diverse constituencies, without mediation through the traditional apparatus of the state.

Obviously these recommendations deal with a wide range of concerns. Some analytical framework is essential to deal with a subject of such breadth. In the next section, one such conceptual scheme is suggested, and subsequently elaborated as the framework for a brief review of recent Canadian experience.

A POSSIBLE ANALYTICAL FRAMEWORK

A few years after Canada's Macdonald Commission offered the observations quoted at the beginning of this article, the much-ballyhooed Brundtland Report popularised the notion of "sustainable development" as standing for development which meets the needs of the present without compromising the (potential) ability of the future to meet its needs. This definition immediately implies the necessity of finding calculating devices or decision processes — analytical methods or procedural substitutes — to represent the interests of future individuals, groups, or generations who are not here either to vote or to signal their preferences through price mechanisms.

The global character of the earth's natural systems, with spillovers from many decisions onto individuals and activities in other regions, possibly quite remote from the original decision, introduces the need to take into account another group of absentees whose interests become relevant, namely those of other nations or other places.

Finally, the broadening of values and outlooks, along with the lengthening time horizon, calls for a concern with the interests of other entities, like trees, brooks, snail darters, or genes, either in their own right or as proxies for our own long-term interests in an uncertain distant future.

All three sets of considerations — the interests of future generations, externalities and spillovers, and intangible environmental or spiritual values — raise questions as to how either public or private decisions can properly and appropriately weight these absent interests in determining the direction of human activity and the allocation of scarce resources, and in particular how government should be organised to pursue the public interest in sustainable development. They also raise questions about the possibilities for market mechanisms and market instruments to eliminate the need for continuing overt government intervention in continuing resource management or environmental protection.

There are three main subjects to pursue in exploring this question:

- The scientific or analytical machinery for rational action in the public interest: enhanced information needs and new decision criteria in processes of policy analysis, evaluation and project appraisal necessary to take account of environmental and economic considerations in an integrated and balanced way;
- The democratic or popular process for responsive action reflecting perceived public preferences: attempts to broaden and deepen information flows in extended con-

sultation processes and through more direct public participation in decisions; and

- The organisation or structure of government to channel information and resolve conflicting pressures in determining policy outcomes: revised public management structures and decision processes to achieve better integration of economic and environmental concerns, and higher priority for the latter. (As one key part of this last topic one must address the question of the level of government expected to handle different classes of decision in a way which best integrates conflicting interests or represents absent interests, with one obvious concern being that of new international institutions to embrace interests crossing existing national boundaries or sovereign responsibilities.)

To illustrate the relationships amongst these several topics, it might be helpful to refer to Figure 1. In highly stylised fashion, this schematic diagram suggests that we are attempting to relate two distinct (though complementary and coexisting) continuing processes to the apparatus and organisation of government. Both processes attempt to bring scientific evidence on long-term consequences of resource management or environmental change that might threaten the sustainability of human activities of the planet itself together with individual or societal values and belief systems. Government structures must be designed to embrace or link with both of these processes in some manner, and we seek to explore how they can be organised to do so more effectively. Either political/voting mechanisms or economic/market mechanisms may be employed for signalling preferences or implementing actions (and obviously both are present to differing degrees at all times).

Information flowing from either the analytical process or the advocacy/adjustment process may be brought into government structures and decision processes in a variety of ways. Again the task will be to identify those changes in structure which best achieve the desired integration of environmental concerns in all government decisions, particularly those dealing with economic policy.

First, the question of information needs and decision processes.

POLICY ANALYSIS AND RATIONAL DECISIONS

The theory on rational analysis for government decisions is well-documented and well-known. The approach assumes that a causal scientific model describing tolerably well the facts of the natural or social world in which we live can be assembled, with choices or courses of action identified, the consequences of each isolated, the values appraised, and preferences as between the alternatives established. On the basis of such analysis, appropriate decisions in the public interest can be reached by governments acting legitimately on behalf of the populace or, with the right sets of prices and discount rates, and the right sorts of institutional arrangements and economic instruments, such decisions may in some cases be delegated to properly working markets.

Either way, given the new interest in sustainability and consequent concerns for environmental variables, these

processes must be informed by better information on the state of the environment, resource accounting, environmental accounts, sustainable development indicators, and the like.

More particularly, on the question of basic scientific understanding, one should refer to the extensive national and international efforts mounted under the International Geophysical/Biophysical Program (IGBP) and attempts to establish a parallel program on Human Dimensions of Global Change (HDGC). Work of the Intergovernmental Panel on Climate Change (ISSC, Dobell) provides one major example of attempts to link uncertain scientific evidence to concrete policy implications.

On the accounting side, academic and governmental work programs are directed toward resource accounting, the development of satellite environmental accounts, and some synthesis into state of environment reports and sustainable development indicators (see Bird and Rapport (1986), Careless (1990), Hodge (1991), Repetto et al (1989) and Wells (1987)).

In the analytical literature, many innovations in estimating "willingness to pay" through contingent valuation methods, estimation of option values and future prices, and incorporation of scientific uncertainties into risk-benefit analysis have been reported (see Crocker (1988), Gunton and Vertinsky (1990)).

On the more difficult question of achieving some effective analytical integration of environmental and economic considerations, there has been much work but substantial doubts remain (see Boulding (1988), Brown (1990), Meyer (1990)). In particular, the art of environmental impact assessment remains controversial (see Canadian Environmental Advisory Committee (1989), Ontario Law Reform Commission), and the question of environmental protection legislation and standard-setting very much a subject for "further consultation" (see Government of Alberta (1990), Government of British Columbia (1991)).

Finally, perhaps the key further step in putting implementable flesh on these analytical skeletons is in the development of economic instruments and market mechanisms to create appropriate incentive systems and to permit off-loading of some detailed regulations and regulatory apparatus. While these developments have to be seen essentially as fundamental institutional changes, they also pose considerable analytical challenge (see Block (1990), British Columbia Round Table (1991), Doern (1990), IRPP (1990), Kneese and Schultze (1975), Project 88 (1988), Tietenberg (1989)).

Thus there remains a great deal of important statistical and analytical work to be done. Experience to date, however, is limited to selected satellite accounts, or sets of isolated indicators, or partial valuations based on estimates of "willingness to pay". The goal of a single "measure of economic and environmental welfare" analogous to Gross Domestic Product (GDP) as an indicator of overall well-being seems well beyond reach operationally, if not conceptually.

So does the notion of a comprehensive cost-benefit analysis or a full set of economic instruments embracing ecological values and corresponding prices. Regional experiments and

pilot projects with selected resources appear more appropriate and more promising at this stage.

An excellent summary of the case for substantial work on the accounting and analytical machinery as an integral part of improved decision-making is set out in *Blueprint In a Green Economy* (Pearce et al, 1989) and its sequel *Blueprint 2* (Pearce et al, 1991). The limitations just noted are well-recognised and discussed there also.

THE DEMOCRATIC PROCESS

In an alternative (though not necessarily conflicting) model of government action, also well-known, and again the subject of a vast literature, emphasis is placed on political activities within and outside government, rather than analytical efforts. This model treats the activities of parties, interest groups, clienteles, agencies and individual players as they work through the adjustments and the processes leading to some resolution of conflicting pressures and interests, and on to government action (For a classic exposition, see Lindblom (1968)).

A particularly insightful recent analysis of some of these developments is offered by Paehlke and Torgerson in *Managing Leviathan*, an edited collection reviewing the evolution of the many "discursive designs" — non-governmental institutions within which the resolution of conflict among diverse interests is attempted directly, without the intervention of the administrative state (Paehlke and Torgerson, 1991).

Thus one should survey briefly the astonishing array of new structures and bodies — roundtables, science courts, participatory mechanisms, and so on — established for consultation and interaction on environmental issues, and assess them as alternatives to analytical procedures in decision processes in this area.

In particular, it would be of interest to explore questions that might arise with respect to pluralist or corporatist tendencies in the 13 different roundtables now operating in Canada, for example (see Howlett, 1990), bureaucratic roles in consultation on political initiatives, privileged access of advocacy groups in the consultation process, alternative dispute resolution processes, and so on. One critical question should prove to be the crucial role of social ground-rules as alternatives either to unimaginable calculation or unending attempts at resolution of perpetually conflicting interests. Native traditions of stewardship will be relevant here. So also will be the attempt to change outcomes by changing the value systems of consumers and clients, and thus working through the market mechanism back onto corporate and public decisions. The link then to trade sanctions and enforcement efforts of international agencies arises, and requires consideration of subsidies codes, environmental standards, and social policy.

In this section we confine ourselves to brief reference to the round table experiments on which Canadian experience is currently focussed. For a general summary of the current state of play and the snowstorm of papers emerging from 13 roundtables all seeking a role and some visibility, one can see the second report of the National Roundtable to the Prime Minister (dated June 1991). (For description of some of the consultative processes set running, see the papers of the B.C. Roundtable on *Consensus Processes*, the

Government of B.C. document on *Strategic Directions for British Columbia* (1991), Howlett (1990), and Paehlke and Torgerson (1990).)

The development of local or community roundtables is emphasised in the recent report of the National Roundtable as the next key step in implementation of sustainable development principles. Interestingly, in a somewhat independent chain of events, the possibility of local control in the management or co-management of resources is emerging as a key issue in work on self-government and aboriginal economic development (see McGonigle (1989)). In addition, it is worth noting that the current constitutional proposals of the Government of Canada envisage the transfer to provincial jurisdiction of responsibility for fisheries and wildlife, soil and water conservation and almost all other elements of land use, thus giving weight to the image of devolution of environmental trade-offs to local governments, while the federal government continues to carry responsibility for participation in international or global arrangements and institutions. In the meantime, the vexed question of responsibility for environmental impact assessment remains unresolved, and resolution of existing serious jurisdictional conflicts remains elusive.

The rush to roundtables and similar consultation structures is part of a more general enthusiasm for consensus-seeking mechanisms and alternative dispute resolution processes. Despite the undeniable promise of such structural changes, it has to be admitted that to date they have clarified conflicts more than resolved them, and have generated more confusion than conclusion. There remain a number of puzzles about the role of government officials sitting in community dispute resolution councils, and about the relationship of all this consultation to the analytical work which is supposed to inform the minister's determination of the public interest.

For now, it is perhaps fair to conclude that consultation mechanisms have set the stage for better conflict resolution, have clarified public attitudes towards a few contentious issues before escalating them to ministers or cabinets for political determinations, but have still to face the hard problems of how to relate consultation outside government to conflict resolution within, and executive action to follow. To date the substantive conflicts over resource use and sustainability have been deferred through an array of preliminary processing and planning exercises; the political pain has been largely postponed, but the need for hard decisions cannot be eliminated, and ultimately these must — at least within our existing parliamentary system — be made within government. This observation thus takes us into the following section.

MACHINERY OF GOVERNMENT

The core issue is the structuring of government to utilise the new information flowing either through new statistical efforts or new consultative processes so as to arrive at acceptable and implementable decisions reflecting the goal of sustainable development by integrating environmental concerns with economic considerations in all actions.

Thus, in any full review it will be necessary to look at the possibilities of new secretariats to serve cabinet committees on sustainable development, new formats for briefing notes, development of new instruments which would permit del-

egation of decisions to markets with confidence that environmental concerns will be properly reflected, restructuring of divisions between central agency, line department, and state enterprise roles, and the like.

There are many facets to this question of reorganisation of the machinery of government in order to relocate the locus of conflict resolution and to achieve more effective economy-environment integration; some of these are discussed in the IRPP report on British Columbia (IRPP, 1990, pp. 156–161). For purposes of this brief section, we will appeal simply to one concrete example of changes introduced in order to integrate the new roundtable structure effectively into government decision processes. That example is provided by the Government of Manitoba, where the Roundtable is chaired by the Premier, and a Cabinet Committee on Sustainable Development has been created, whose members also sit on the Roundtable. The resulting organisational structure and decision framework is set out in Figures 2 and 3.

Many other governments have initiated similar organisational changes. But it can be questioned whether, as a result, the balance of influence in Cabinet decision-making has shifted in favour of “sustainability” concerns rather than jobs, competitiveness, or fiscal prudence where these appear to conflict with longer-term worries about environmental integrity. Requirements for routine inclusion in Cabinet documents and decision memoranda of a section on “environmental implications” along with “fiscal implications” have been suggested (see IRPP, 1990); so far they do not seem to be entrenched anywhere.

In any case, such government decisions seem likely to call for executive action going beyond what can be achieved (at least in the short term) either through consensus-seeking processes or even through a thorough-going system of economic incentives and market-based instruments. In “Blue 2” David Pearce and his colleagues argue the need for a system of such market-based instruments but emphasise the necessity to embed them in a mixed system along with the regulatory measures and general ground-rules of a “command and control” approach (see Pearce, 1991).

The key question of social ground-rules (for example, an irreversible set-aside of some proportion of available land to be preserved as wilderness in perpetuity) as devices for rechanneling community conflict toward socially productive interaction is particularly relevant here.

Since we cannot handle centrally, or even in a central planning framework, the myriad calculations and decisions necessary to run an economy, we must decentralise to a market. But that market needs an overall mission or target. And that target can only be expressed through an ethical principle, which for practical purposes has to be expressed as a non-discretionary allocation placed largely beyond debate or calculation once it is in place.

“Do not eat into capital” was one suitable ground rule for the protection of Victorian widows thrust into unfamiliar stock market decisions. This has its direct counterpart in the Brundtland direction to “live off the interest” from natural resources. “Do not sell the heirlooms” was another such precept, designed to guard against regrets associated with irreversible loss of priceless assets.

Figure 2: COOPERATIVE APPROACH

The process should be designed to work towards consensus and to exert direct influence on policy and decision makers at the highest levels of government . . . The National Task Force P. 10

With establishment of the Manitoba Round Table, the Province of Manitoba committed itself to a cooperative approach in addressing and resolving critical local, provincial, national and global issues related to the environment and economy. It brought together business, concerned citizens, local government, non-government organizations and provincial ministers to identify and discuss issues and develop recommendations in a spirit of cooperation and consensus building for the resolution of problems. This was a first step towards sustainable development in Manitoba and the public sector.

The participation of decision makers and concerned citizens of the Round Table will ensure that communication will be a two way street and will build the necessary integration ethic. They will be the sounding board against which the effectiveness of the changes can be evaluated.

ORGANIZING

Restructuring the way we make decisions and carry out our activities is at the core of sustainable development: environment-economy integration. A step in this process of change is a strategic organizational structure to direct, evaluate, and monitor the comprehensive and methodical restructuring necessary to guide the transition to sustainable development.

The Manitoba Round Table and the Manitoba Government have each established the necessary strategic organizations and the linkages between them to fully integrate policy development and implementation.

Source: Public Sector: A Process for Change, Manitoba Round Table on Environment & Economy, 1990.

THE MANITOBA ROUND TABLE STRUCTURE

Simple yet effective, the Manitoba Round Table has organized itself into seven subcommittees of which one is responsible for the public sector. The Round Table reports to the Premier of Manitoba and the subcommittees report to the Round Table. To support the Round Table, the Province established the Sustainable Development Coordination Unit who provide the necessary secretariat and management functions.

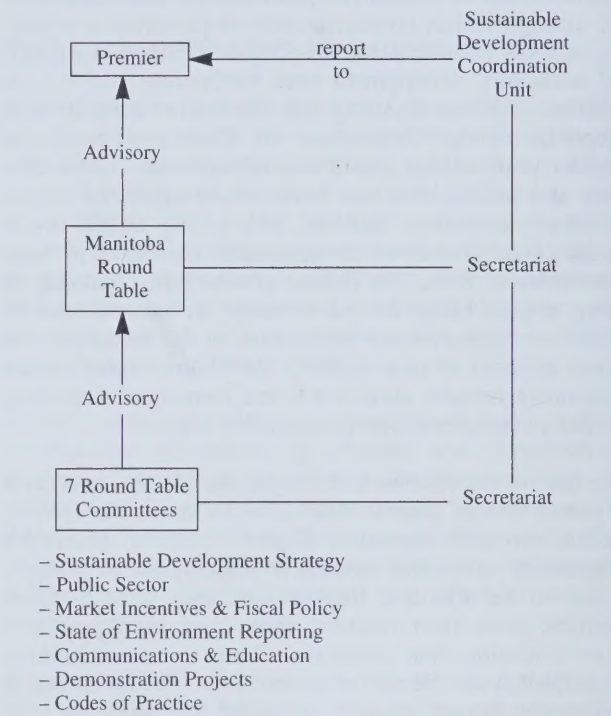


Figure 3: THE MANITOBA GOVERNMENT SUSTAINABLE DEVELOPMENT STRUCTURE

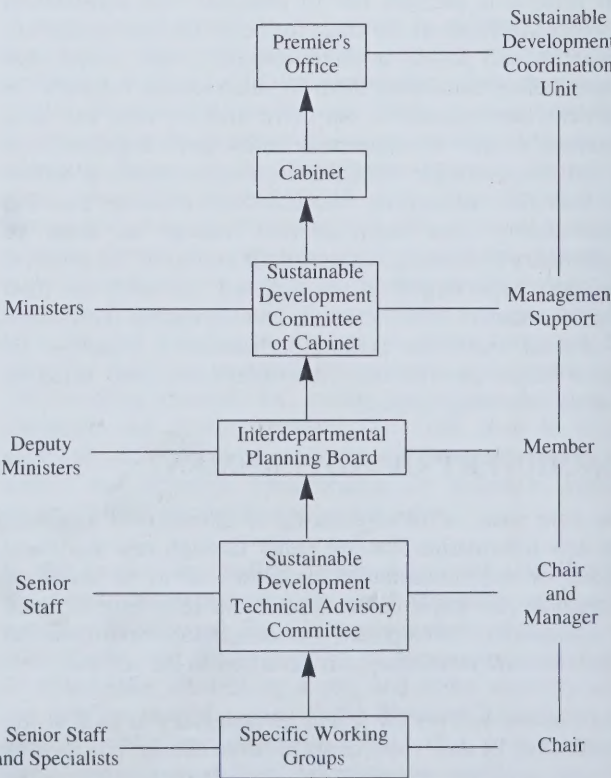
Building upon existing integrating mechanisms, the Province has established a structure for sustainable development which encompasses the broad spectrum of decision-making in the organization.

The structure involves the Premier's Office, the Sustainable Development Committee of Cabinet which is composed of six ministers, the Interdepartmental Planning Board, composed of Deputy Ministers from 16 departments and representatives from two Crown Corporations, the Sustainable Development Technical Advisory Committee composed on senior managers from 15 departments and Crown Corporations and specifically established working groups.

Located in the Premier's Office is the Sustainable Development Coordination Unit. Formed to coordinate the provincial sustainable development initiatives, the Unit provides management support to the Cabinet Committee, is a member of the Deputy Minister Committee and chair and manage the Sustainable Development Technical Advisory Committee and Working Groups.

Source: Public Sector: A Process for Change, Manitoba Round Table on Environment & Economy, 1990.

MANITOBA GOVERNMENT SUSTAINABLE DEVELOPMENT STRUCTURE



An allocation of, say, 13 percent of our land base to wilderness preservation, for example, is a similar protection for societies determined to respect the interests of future generations in an uncertain world.

At the margin both of these Victorian rules may be seen as irrational in the short term. But in the long term, the cost of opening up the rule for debate may be far greater than the cost of an apparent short term sub-optimality.

And what is fascinating about all this is that it returns us to a different kind of constitution, namely that of the aboriginal communities of North America, based on a hard and fast notion of stewardship of a resource heritage.

After two hundred years of industrial development and Smithian economics, we cannot pass on a heritage of the sort we inherited. But we can limit the inexorable transformation of natural capital into produced capital by an appeal to the principle of a diversified portfolio: we need to retain a modest margin of natural capital simply to guard against the risks of an uncertain future where the gene pool may become important, where wilderness may be an important spiritual resource, or where a better relationship with the land has to be rediscovered.

The case to be made here is that such argument is not anti-market or anti-economic — it is simply establishing the parameters essential to make the market work in the area of sustainable development, so that we can get on with the other social decisions essential to a functioning community.

DIVISIONS OF POWERS AMONGST ORDERS OF GOVERNMENT

As a federal state, Canada faces major questions of division of governmental powers and jurisdictional conflict in the fields of resource management and environmental protection. But the question is much larger than the constitution of a single nation state. Much literature now speculates on the growing polarisation of governmental functions, with the emergence of global issues which can only be handled at international level, and inexorably demand the creation of new international machinery, while at the same time growing demands for direct democracy to replace existing institutions of representative democracy press for the devolution of many existing functions and powers to community and local governments (see, for example, Dobell and Parson (1988), Benedick (1991) and MacNeill, Winsemius and Yakushiji (1991)). (In Canada, the growing pressures for self-government for the aboriginal peoples of North America, and their intensifying claims for control over resource management is only one particularly interesting instance of this general phenomenon.) With these features of the global economy pressing strongly on existing structures, the tendency for global economic integration to be coupled with fragmentation into more cohesive ethnically-oriented social or political groupings calls into question the ability of either federal or provincial government machinery to deal adequately with broad concerns for sustainable development.

In this general setting, it is fascinating to speculate on the emergence in the sustainable development field of international machinery with not only monitoring and surveillance capabilities, but enforcement powers as well. (The Decla-

ration of The Hague, signed by 12 Heads of Government on 11 March 1989, and subsequently endorsed by 18 others, is a remarkable milestone in this story, even though its goals remain so far unrealised.) The development of such machinery raises questions not only of sovereignty, but of the possible evolution of subsidies codes and other rules of the game designed to safeguard the powers of individual nations or sub-national communities to legislate standards reflecting their own attitudes and preferences regarding environmental risks and values. In an increasingly integrated global economy and market-oriented world, such codes and standards increasingly may come to be seen as the price of cultural survival. (The surfacing of such questions as matters for GATT panels or the dispute resolution machinery of the Canada-US Free Trade Agreement is one indication of how quickly these problems of the trade-environment nexus will become serious.)

Thus, it is not just the machinery of a single government that is at issue here, it is the whole allocation of powers among governments. The locus of decision may shift not only among existing governments or government agencies, but to new institutions and unprecedented governmental (or non-governmental) forms.

And in this framework it becomes crucial to see what machinery can link the local community decision on resource allocation to its global consequences. What signals will enable each local community to weigh, in a manner consistent over time and with other communities, the distant global consequences of each of its individual decisions in each micro transaction and the distant preferences bearing on it?

The economist's answer is that this is precisely the genius of the price system and market mechanisms, and the reason why we must intensify our search for appropriate economic instruments to reflect environmental values and property rights. But, as has already been noted, appropriate social ground-rules (ethical principles) are required to set the parameters (outline the playing field) for these markets. And so far it is not yet clear how to do that effectively.

Thus, the consideration of emerging new international institutions returns us to the starting point for this article, namely the introduction of new environmental values — in particular, the value of sustainability — into existing political cultures based on Western-style market economies, technological optimism, and, in some cases, a strongly individualistic Charter-based concept of rights.

CONCLUDING THEMES: WHERE IS ALL THIS GOING?

Governments will have to reorganise to generate and use a great deal more information reporting on progress toward goals of sustainable development, and will have to promote much fuller reporting on environmental values as part of economic life. But all the information necessary to work properly from underlying scientific evidence to uncontested decisions in the public interest will never be available.

Governments will have to work toward development of much wider arrays of economic instruments (tradeable permits, quotas, etc) enabling reduced intervention of government in resource allocation activities, and greater dele-

gation to markets. But the signalling of public concerns for environmental values and future generations will never be adequately achieved through market mechanisms alone, even if corporate horizons were as long as now claimed (which they are not). The social responsibility exercised by the new "green" corporation still requires a clear statement of the social ground-rules and binding constraints within which they are to operate (see "Environmental Stewardship at Shell", 1991 and Dobell, 1991).

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So we will be left with the need to work through various processes for mutual adjustment of apparently conflicting interests, with advocacy groups attempting to influence both corporate customers and government regulators, and governments both extending consultation processes and broadening public participation in decisions. The final outcome can best be described as an appeal to broader market mechanisms within stronger democratic guarantees (of access to information, rights of appeal and participation, standing for interested representatives of absent voices, etc). This sort of decentralisation to "markets within rules" has been around a long time, but the particular case of sustainable development gives the search a particular edge at this moment in history.

A second theme may be the relevance of social ground-rules stemming from growing recognition of other cultural traditions. In particular, the importance of social acceptance of stewardship notions which force adequate provision for future interests without opening up an endless debate may prove interesting (see Osberg (1988)). And how such notions can be embedded effectively within the trading rules of integrated borderless global markets even more interesting and challenging. But that, too, is a whole other story.

REFERENCES

- Bankes, N.D. (1988). "The Ozone Convention and Protocol: Further Steps Towards an International Law of the Atmosphere." *Resources* No. 22. Spring.
- Bankes, N.D. (1985). *International Regulation of the Environment: Stockholm and Beyond*. Opening remarks, Conference of the Council of International Law.
- Benedick, Richard Elliot (1991). *Ozone Diplomacy: New Directions in Safeguarding the Planet*. Cambridge and London: Harvard University Press.
- Bird, Peter M. and David J. Rapport (1986). *State of the Environment Report for Canada*. Ottawa: Environment Canada.
- Block, Walter E. (1990). *Economics and the Environment: A Reconciliation*. The Fraser Institute.
- Boulding, Kenneth E. (1988). "Can there be Models for Sustainable Development?" In *The Brundtland Challenge and the Cost of Inaction*, Alex Davidson and Michael Dence, eds. Halifax: The Institute for Research on Public Policy.
- Bowes, Michael D., and John V. Krutilla (1989). *Multiple-Use Management: The Economics of Public Forestlands*. Washington, D.C.: Resources for the Future.
- Bridges, G.E. "Decision-Making Processes and the Energy Sector," prepared for the British Columbia Round Table on the Environment and the Economy.
- British Columbia Round Table on the Environment and the Economy. "A Better Way: Creating a Sustainable Development Strategy for British Columbia."
- (1991). "Reaching Agreement: Volume 1. Consensus Processes in British Columbia," Report of the Dispute Resolution Core Group.
- (1991). "Sustainable Communities," discussion paper for public participation.
- (1991). "Sustainable Development and Economic Instruments — Part One: Market Incentives, Resource Accounting," discussion paper for public participation.
- (1991). "Sustainable Development and Energy," discussion paper for public participation.
- (1991). "Sustainable Land and Water Use," discussion paper for public participation.
- Brown, L.R. (1984). *State of the World in 1984: Progress Towards a Sustainable Society*. New York: Worldwatch Institute.
- Brown, Peter G. (1990). "Greenhouse Economics: Think Before You Count," Report from the Institute for Philosophy and Public Policy, University of Maryland (Summer/Fall).
- Canadian Environmental Advisory Committee. *Preparing for the 1990's: Environmental Assessment, an integral part of decision making*.
- Careless, Ric. "Incorporating Environmental Performance Indicators into National Income Accounts," prepared for the British Columbia Round Table on the Environment and the Economy.
- Creery, Tim (1986). "Book Review: Population Briefings," *Policy Options Politiques*, Vol. 7, No. 8. Halifax: Institute for Research on Public Policy.
- Crerar, Alistair (1986). "Resource Cost Accounting," *Policy Options Politiques*, Vol. 7, No. 4. Halifax: Institute for Research on Public Policy.
- (1986). "Anticipate and Prevent," *Policy Options Politiques*, Vol. 7, No. 9. Halifax: Institute for Research on Public Policy.
- (1987). "Follow Through on Brundtland," *Policy Options Politiques*, Vol. 8, No. 7. Halifax: Institute for Research on Public Policy.
- (1987). "Brundtland Bettered," *Policy Options Politiques*, Vol. 8, No. 9. Halifax: Institute for Research on Public Policy.
- Crocker, Thomas D. (1988). "On Measurement and Value in Environmental Economics." *The Brundtland Challenge and the Cost of Inaction*, Alex Davidson and Michael Dence, eds. Halifax: The Institute for Research on Public Policy.
- Dobell, A.R. (1991). "From Sustained Yield to Sustainable Forests: A Public Policy Perspective on Silviculture Investments," Discussion Paper, November.
- Dobell, A.R. (1990). "The Human Dimension of Global Change," Keynote Address to the First Annual Assembly of the Canadian Global Change Program, Toronto, April 18, 1990.
- Dobell, A.R. and E.A. Parson (1990). "Wrap-up Remarks: Policy and Legislation Stream," *Globe* 90, March 25, 1990.
- Dobell, A.R. and Ted Parson (1988). "A World Atmosphere Fund," *Policy Options Politiques*, December 1988.
- Dobell, Rodney and David Zussman (1981). "An Evaluation System for Government: If Politics is Theatre, Then Evaluation is (Mostly) Art," *Canadian Public Administration*, Vol. 24, No. 3, 404–427.
- Doern, G. Bruce (1991). "Shades of Green: Gauging Canada's Green Plan," Commentary, C.D. Howe Institute, No. 29 (April), 1–12.
- Doern, G. Bruce (ed.) (1990). *Getting it Green: Case Studies in Canadian*

- Governmental Regulation, Policy Study 12. C.D. Howe Institute (November).
- Doern, G. Bruce and Richard W. Phidd (1983). *Canadian Public Policy — Ideas Structure and Process*. Ontario: Methuen Publications.
- Drury, C.M. (1975). "Quantitative Analysis and Public Policy Making," *Canadian Public Policy*, 1:1 Winter, 90–96.
- Farber, D.A. (1989). "Environmentalism, Economics and the Public Interest", *Stanford Law Review* No. 41, April.
- Feeny, David, Fikret Berkes, Bonnie J. McCay and James M. Acheson (1990). "The Tragedy of the Commons: Twenty-Two Years Later," *Human Ecology*, Vol. 18, No. 1.
- First Joint Meeting of Round Tables on Environment and Economy, April 27–28th, 1990, Conference Proceedings Report for Canada-Round Tables, Manitoba Round Table 1990.
- Government of Alberta (1990). "Discussion Draft of Proposed Environmental Protection and Enhancement Legislation," Alberta Environment.
- Government of British Columbia (1991). "Environment 2001 — Strategic Directions for British Columbia," Ministry of Environment (August).
- Government of Canada (1988). *Progress Report of the National Task Force on Environment and Economy*. Submitted to Canadian Council of Resource and Environment Ministers (Chairman: Connery, Ed).
- (1987). *Report of National Task Force on Environment and Economy*. Presented to Canadian Council of Resource and Environment Ministers, 24 September 1987 (Chairman: Lecuyer, Gerard).
- Government of Manitoba (1990). "Public Sector: A Process for Change," Manitoba Round Table on Environment and Economy.
- Gow, Lindsay J.A. (1990). "New Zealand's Resource Management and Local Government Reforms". Paper presented to the Policy and Legislation Stream of the Globe '90 Conference, Vancouver. March 19–23.
- Gunton, T. and I. Vertinsky (1990). "Methods of Analysis for Forest Land Use Allocation in British Columbia: Options and Recommendations," prepared for the British Columbia Round Table on the Environment and Economy.
- Hoch, D. (1988). "Environmental Ethics and Non-Human Interests: A Challenge to Anthropocentric Licence". *Gonzaga Law Review*, No. 23, 1987–1988.
- Hodge, R.A. (1991). "Toward a Yukon SOE Reporting Framework," (Volume I — Main Report; Volume II — Appendices), prepared for The Sustainable Development Committee, Yukon Council on Economy and Environment and The Department of Renewable Resources, Government of the Yukon, Whitehorse, Yukon.
- Howlett, Michael (1990). "The Round Table Experience: Representation and Legitimacy in Canadian Environmental Policy-Making," *Queen's Quarterly*, 97/4/Winter.
- Institute for Research on Public Policy (1990). "Implementing Sustainable Development: The Case for a B.C. Environmental Protection Act," Report prepared for the British Columbia Ministry of Environment (April 30, 1990), 156–161.
- Kneese, Allen V. and Charles L. Schultze (1975). *Pollution, Prices and Public Policy*. Washington, D.C.: The Brookings Institution.
- Law and Economics Symposium (1988). "New Directions in Environmental Policy". *Columbia Journal of Environmental Law* No. 13.
- Lindblom, Charles (1968). *The Policymaking Process*. Englewood Cliffs, N.J.: Prentice Hall.
- Malley, Diane F. and Paul D. Watts (1989). "A Scientific Silence," *Policy Options Politiques*, Vol. 10, Number 4. Halifax: Institute for Research on Public Policy.
- MacNeill, J.W., Peter Winsemius and Taizo Yakushiji (1991). *Beyond Interdependence*. Oxford University Press.
- Meyer Resources Inc. (1990). *Economic Measures for Integrating the Environment and the Economy in British Columbia*. A report prepared for the British Columbia Round Table on the Environment and the Economy.
- Miller, Morris (1989). *Institutional and Policy Change: Integrating Environment in Economic Decision-Making*. Ottawa: Institute for Research on Public Policy.
- Montgomery, John (1990). "Environmental Management as Behavioural Policy," *Canadian Public Administration*, Vol. 33, No. 1 (Spring), 1–16.
- Munns, Joyce C. (1975). "The Environment, Politics and Policy Literature," *Western Political Quarterly*, Vol. XXVIII (December), 646–67.
- Myers, N. (1979). *The Sinking Ark*. Oxford: Pergamon Press.
- National Task Force on the Environment and Economy, *Report* (1988) and *Progress Report* (1989).
- Ontario Law Reform Commission (1989). *Report on the Law of Standing*. (Ottawa).
- Osberg, Lars (1988). "Remarks" in *The Brundtland Challenge and the Cost of Inaction*. Institute for Research on Public Policy, 33–39.
- Pachlke, Robert and Douglas Torgerson (1990). *Managing Leviathan — Environmental Politics and the Administrative State*. Broadview Press Ltd.
- Pearce, David (ed) (1991). *Blueprint 2*. London: Earthscan Publications.
- Pearce, David, Anil Markandya, and Edward B. Barbier (1989). *Blueprint for a Green Economy*. London: Earthscan Publications.
- Presthus, Robert (1973). *Elite Accommodation in Canadian Politics*. Toronto: MacMillan.
- Project 88: Harnessing Market Forces to Protect Our Environment — Initiatives for the New President. Washington: December.
- Pross, A. Paul (1986). *Group Politics and Public Policy*. Toronto: Oxford University Press.
- Rankin, Murray (1989). "New Directions in Dispute Resolution?" Paper for the Wilderness Advisory Committee of B.C., *Environmental Planning Law Journal* No. 6. March.
- Repetto, R., W. Magrath, M. Wells, C. Beer and F. Rossini (1989). *Wasting Assets — Natural Resources in the National Income Accounts*. Washington, D.C.: World Resources Institute.
- Royal Commission on the Economic Union and Development Prospects for Canada, *Report*, Volume 2, 507, 524, 1985.
- Ruckelshaus, William (1989). "Toward Sustainable Development". *Scientific American*, September.
- Saskatchewan Round Table on the Environment and Economy. "Conservation Strategy for Sustainable Development in Saskatchewan," discussion paper for public meetings in the fall.
- Schwab, Robert M. (1988). "Environmental Federalism," *Resources*, Volume 92 (Summer), 6–9.
- Scott, Anthony (1991). "Piecemeal Decentralization: The Environment," Department of Economics, University of British Columbia, unpublished paper (June).
- Stanbury, W.T. (1986). *Business Government Relations in Canada*. Ontario: Methuen Publications.
- Tietenberg, T.H. (1989). "Economic Instruments for Environmental Regulation". Manuscript prepared for the *Oxford Review of Economic Policy*. August.
- Wells, Michael P. (1987). *Economic Accounting for Natural Resource-Based Economies: Measuring the Cost of Resource Depletion* (unpublished paper).
- Wildavsky, Aaron (1979). *Speaking Truth to Power: The Art and Craft of Policy Analysis*. Toronto: Little Brown & Co.
- World Commission on Environment and Development (1987). *Our Common Future*. Oxford: Oxford University Press.

Energy Efficiency and Sustainable Development

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SUSTAINABILITY — WHAT IS TO BE SUSTAINED

The term sustainability has gained considerable currency recently. But what sustainability means, and more particularly, what is meant by sustainable economic growth and sustainable development, is still evolving.

The 1987 Brundtland Commission Report, *Our Common Future*, defines sustainable development as ensuring that the needs of the present are met without compromising the ability of future generations to meet their own needs.

Many people would likely be happy with a similar definition of the term sustainable economic growth, the focus of this workshop. But this different phrasing is worth exploring a little.

Developing nations would probably sacrifice more in financial terms if rates of natural resource consumption were heavily restricted. Like the industrial countries, they too would benefit from a largely unrestrained use of resources to build an infrastructure to support a more advanced economy.

The words, economic growth, have a strong ring to them of the provision of physical production. Development, on the other hand, spans a much broader set of images, including patterns much less focussed on the provision of consumable goods.

Sustaining the flow of goods is a considerably more difficult task than sustaining human development. This is because it is production of those goods which is the dominant source of stress on the environment.

Thus, supplying a growing society which is both using its resources more efficiently and changing the composition of its demand to something less stressful on the environment points to a challenging but workable process. And there seems every likelihood that human wants will change in the post-industrial age to a mix where physical goods make up a far smaller proportion of the wealth.

Getting on to that sustainable development track may involve more advanced nations sacrificing some wealth that could otherwise be attained, along with considerable realignment of social and institutional structures. But realising that challenge looks possible. The trouble for developed countries is that the challenge is not confined to influences under their direct control.

It is the developing nations which are expected to place additional strains on the environment at a faster rate than developed countries. And environmental issues often have a poor respect for national and even regional boundaries.

Developing nations would probably sacrifice more in financial terms if rates of natural resource consumption were heavily restricted. Like the industrial countries, they too would benefit from a largely unrestrained use of resources to build an infrastructure to support a more advanced economy.

Thus, the challenges for advanced countries are not the easier set arising from problems within their own borders. They must include the environmental problems of many other nations.

GLOBAL WARMING

A very important example is the emission of greenhouse gases. As is well understood, the body of scientific thought believes that the emission of certain gases, principally carbon dioxide, is changing the composition of the atmosphere in a way that will result in additional warming of Earth's surface. No matter where in the world greenhouse gases are produced, the impact is spread almost entirely equitably. The climate in England can be influenced just as easily by coal consumption in China as emissions from the United States transport industry.

Thus, it is clear that no country through the unilateral control of emission levels can effectively influence the impact of greenhouse gases on its climate. What is more, acting unilaterally may make a minor contribution to reducing the threat, but quite likely at a financial penalty to the country.

For example, a carbon tax on sources of greenhouse gases would reduce emissions, but would also impose costs on exporters making use of energy where their competitors would not face this price increase. It represents an immediate reduction in the competitive position of those producers. While carbon tax revenues may be able to be redistributed in a way that mitigates some of this effect, there will inevitably be substantial distortions which carry an economic penalty.

Carbon dioxide is certainly not the only significant gas contributing to global warming: methane and chlorofluorocarbons (CFCs) are more damaging per molecule and more long lasting. But carbon dioxide is the biggest single component. It makes up 56 percent of greenhouse gas

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emissions worldwide.¹ The sources of carbon dioxide are also comparatively easy to trace and physically control.

Those sources are 90 percent energy related, predominantly waste from energy consumption. Thus, reduced energy consumption is the obvious target for serious initiatives designed to limit global warming. For the immediate future, the global warming debate is an energy debate: how to deliver the needs of today without compromising those of future generations.

The Brundtland Commission reported that to bring developing countries' energy use up to the level of industrialised countries by the year 2050 would require a five-fold increase in energy use. As scientific opinion currently holds that a 60 percent reduction in current greenhouse gas emission levels is required just to stabilise the atmospheric balance, it is clear such a path is completely unsustainable in terms of the feared consequences of global warming.

In the next decade, the World Bank expects the developing world to spend about US\$1 trillion on electricity generating and transmission facilities. Almost two-thirds of the new generating capacity, or 244,000 MW, will be built in Asia. Fourteen Asian countries, excluding Japan, will spend US\$456 billion on electricity equipment in the same period. China and India will account for 80 percent of this total.²

While a reasonable portion of this will not involve burning fossil fuels, a large share of it will. Hydro-electricity proposals have provoked considerable opposition in Thailand, China and India as they have required residents to move and have caused severe ecological damage in some instances. Nuclear power is attracting growing opposition and is considerably more expensive to construct in terms of the cost of a unit of electricity produced.

And the ecological effects are not just confined to the consumption end of the energy cycle. In order to extract primary energy resources to produce energy, considerable costs are imposed on the environment. A good portion of the digging in the ground, drilling off-shore, and river reconfiguration undertaken is in pursuit of energy sources.

The enormous planning investment in electricity production and distribution is costly not only to the environment. The scale of the financial commitments required will in turn crowd out spending in social services, and will restrict access to funds for other local businesses. It is also estimated that 38 per cent of the spending will be financed by foreign borrowing.

While there are many possible mechanisms for limiting greenhouse gas emissions at a global level, the two that have attracted the most attention are carbon taxes and tradeable permit rights.

Carbon taxes impose a levy on sources of greenhouse gases in order to raise the price of the activity generating the gas. As noted before, most of the targets of the taxes are energy sources — gas, coal and oil products. Raising their price tends to reduce emissions by encouraging substitution, greater efficiency of use, and conservation.

Demand for energy services is generally quite inelastic, however. A recent OECD survey of the major studies to date on the degree of elasticity suggests that to get a 20

per cent reduction in greenhouse gas emissions, the price of the energy source must almost double. That in turn produces considerable distortions in the economy as described earlier, particularly with respect to the internationally traded sector.

TRADEABLE PERMITS

Tradeable permits for greenhouse gas emissions work on a quite different basis. As with carbon taxes, an emissions ceiling must be decided on as a first step. But rather than taxing the source of the emissions to the point where the desired reduction is achieved, a quantitative limit is set through issuing a limited volume of tradeable permits. Thus the price of the permits rises to reflect their scarcity value. In theory, the businesses and individual consumers able to secure the best value from use of the permits will prevail in the allocation.

While both systems would require a global convention to be effective, tradeable permits have another very important feature: they promote wealth transfer. As emissions have a global impact, whatever the initial allocation systems at the national level, it will make sense for the permits to be internationally tradeable. And, as the average person in an industrialised country consumes more than 80 times that of a sub-Saharan African, for example, the wealth transfers have the potential to be quite large if allocated on a per capita basis.³ That partial redistribution alone will lead to pressure for less equalitarian variations if not completely different basic formulae — ranging to allocating permits to all existing users on the basis of present usage. Still, whatever the initial basis for distribution, so long as there is an element of the per capita formula, the developing countries will be relatively advantaged.

While the initial permit allocation may mean developing countries face less pressure to reduce emissions, even if there is a surplus of emission rights to sell, these could still have a considerable opportunity value.

Just as the more industrialised countries will need to find ways to curb their growth in fossil fuel use, so there will be benefits for developing countries in doing this.

ENERGY EFFICIENCY

A promising path for all nations is the more efficient use of energy at the point of consumption. Energy efficiency is not energy conservation, which means using less energy and getting reduced service. Energy efficiency means using less energy but getting the same output.

For a range of reasons energy efficiency technology has declined markedly in real terms in recent years. One estimate is that in the last five years energy efficiency technologies have declined six-fold in real terms. This, combined with the rising costs of additional generation and the increasing community opposition to new power stations, has given energy efficiency a much enhanced role.

In many countries the cost of saving a unit of energy is a third or less that of generating an additional unit of supply. Energy efficiency technologies are often simple devices which have been refined in recent years and often involve retrofitting or replacing bits of appliances or machinery.

The philosophical shift has been a change of focus from supplying electricity to supplying electrical services. Those services are the end results consumers seek: lights, heat and motor torque, etc. No longer can the end services consumers desire be considered to be simply a function of how much electricity is put in. Service is now a function of the amount of electricity put in along with the efficiency of the conversion device.

What energy efficiency offers, therefore, is a cheap source of new power. It is a "win-win" in terms of providing financial savings and savings to the environment, all in one easily accepted package.

Implementing energy efficiency in industrial countries is not without its problems. There have been difficulties both in terms of convincing electricity retailers that it is in their interest, as well as convincing the consumers it is worthwhile. But a number of United States utilities, in particular, are now conducting efficiency programs which are intended to substitute for significant shares of their new demand. In the case of San Francisco-based Pacific Gas and Electric, the company plans to obtain 75 per cent of its new power needs from efficiency and the remainder mainly from renewable technologies.⁴

A promising path for all nations is the more efficient use of energy at the point of consumption. Energy efficiency is not energy conservation, which means using less energy and getting reduced service. Energy efficiency means using less energy but getting the same output.

But implementation will be considerably more difficult in developing countries, according to officials, and utilities in those countries. "We think it would be impossible to implement these sorts of measures in Taiwan", says Yih Hong-ting, executive director of the Energy Committee, the agency responsible for the nation's energy policy. "People here are not very lawful so it would be difficult to ensure that they had actually installed the proper sort of equipment."⁵

One means of attacking this problem and reducing the concerns of industrialised nations about the scale of wealth transfers to less developed countries would be for at least a portion of the international flow of payments for permits to less developed countries to have special conditions applied to them.

The crudest of mechanisms would be simply a requirement that a portion of the payments be used to purchase energy efficiency devices of one form or another and fund their installation. Compact fluorescent bulbs, for example, are an especially effective energy savings device. Such bulbs replace normal lamps and give off the same amount of light using only a quarter of the electricity. The snag is that they cost ten to twenty times that of a normal bulb and even though they last around ten times as long, the initial cost is obviously a considerable barrier to consumers even if it will produce handsome savings over time.

Compact fluorescents, however, are still very cheap as a "source" of energy by comparison to building new power stations. California's Lawrence Berkeley Laboratories estimate that it is generally six times more costly to build a new power station than to free up the equivalent amount of power by installing sufficient compact fluorescent bulbs.

And rather than importing these bulbs, developing countries would make their own. It is estimated by the same laboratory that constructing plants to produce such devices is a hundred times cheaper than new power stations per unit of electricity produced or saved.

Thus, the sort of supranational forms of governance which may be needed simply to arrange and police a serious program of emissions reductions could be used also to facilitate some wealth transfer tagged to addressing the source of the problem.

Once an initial allocation system has been devised, it would be established that permit trading within national borders attracted no special conditions. But it could be agreed that international permit trading would be subject to provisions for directly reducing greenhouse gas emissions.

Energy efficiency is likely to prove a very attractive means of meeting this objectives, but the conditions should be framed much wider to embrace other mechanisms for delivering the desired outcome such as small-scale renewable generation plants.

While the global warming issue clearly shows the need for special provisions at the international level, environmental concerns are similarly influencing processes at the national level.

Change has not been as evident in recognising the long-time cycles that many environmental issues operate over. There is still considerable room for one group of people to damage the ecology of an area but to escape the consequences due to the long gestation period of the effects. When the consequences do appear they may also be long lasting, even when treated so that there is little immediate pay-off for those facilitating the corrective measures. Such timescales result in intergenerational inequities that are very difficult for present systems to deal with.

Better progress has been made recognising spatial inequities. Where a polluter can discharge waste at no cost to the immediate environment, but with substantial costs falling on other parties some distance away, such practices are reasonably well covered within national borders.

But the bulk of environmental problems involve issues that are both created and felt locally. This has given rise to a trend towards decentralised administration of environmental issues. Giving greater power to local level authorities is certainly a key element in New Zealand's recent overhaul of its resource statutes.

The *Resource Management Act* 1991 replaced a host of independent and often conflicting pieces of legislation governing different resources and their use. And it gave jurisdiction to regional councils which have been defined not on the basis of old regional boundaries but with reference to appropriate catchment areas.

The Act has a single overarching purpose: to promote the sustainable management of natural and physical resources. Sustainable management is defined as:

the use, development and protection of natural and physical resources in a way, or at a rate, which enables peoples and communities to provide for their social, economic and cultural well being and for their health and safety while:

- (a) *Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
- (b) *Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and*
- (c) *Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

This definition alone makes clear the seriousness with which the concept of sustainable development has been pursued in framing restrictions on resource use. The shift in emphasis is fundamental and the statute is written in plain language to allow wide access to it. The Act has only been in force a few months but it promises some fascinating precedents as the real meaning of the above phrases is tested.

While the *Resource Management Act* sets a high standard of care at the implementation level, New Zealand is not nearly as advanced at the macro policy level. The Act certainly ensures the sustainability test is run over any particular proposal. But, at the end of the day, this is a reactive role.

At the government policy level, there is a lack of mechanisms for effectively integrating environmental and economic aspirations. This is, in part, a function of the view governments in recent years have taken with respect to their role in the New Zealand economy. Following a long period of overly close involvement, from 1984 there has been a strong move away from government intervention.

Thus, there has been no call for a strategic vision that would demand some framework for dealing with conflicting economic and environmental objectives. This situation has no doubt contributed to another impediment to integration, which has been very strict departmental administration of policy issues.

Some progress is being made towards gaining a better information base for decision-making through natural resource accounting. The Ministry for the Environment and the Department of Statistics have jointly proposed a pilot study for this year to initiate state of the environment reporting.

But, overall, New Zealand still faces a strong need to build appropriate mechanisms into the policy process that reflect a nation which places environmental protection fairly high on its list of priorities. While New Zealand has often led international environmental issues from Pacific nuclear testing to driftnet fishing, these have been case-by-case initiatives.

The fundamental questions which sustainability asks of all our political systems should be viewed as an opportunity rather than a threat. It is an opportunity to revise these systems in a considered way where there is no particular external force set to invade and no internal group which is really so differently affected in the medium to long term. If we do see a threat, it is that in the mirror.

REFERENCES

1. Final report of the Intergovernmental Panel on Climate Change, November, 1990.
2. "Bright Lights, Dim Cities", *Far Eastern Economic Review*, 1 August, 1991.
3. "Macro Economic Implications of Reducing Greenhouse Gas Emissions: A Survey of Empirical Studies", *OECD Economic Studies*, No 16, Spring 1991.
4. *Our Common Future*, The World Commission on Environment and Development, 1987.
5. *The Economist*, March 1991.

Sustainable Development, Global Trading Rules, and the Asia-Pacific Region

Lyuba Zarsky*

The role of international trade in promoting — or inhibiting — ecologically sustainable development is emerging as a pivotal issue in both trade and environmental diplomacy. According to Michael Smith, former US Ambassador to the General Agreement on Tariffs and Trade, the environment will be the number one issue in multilateral trade policy in the coming decade (Smith 1991).

The agenda is being pushed from two directions: national trade-impacting environment policies and international environmental agreements. At the national level, conservation groups in Europe, the United States and Canada are pressing for unilateral or plurilateral initiatives to restrict imports on environmental grounds. (Examples include a proposal by the European Parliament to constrain imports of tropical timbers to those produced under sustainable development plans (the Muntingh Proposal); and US legislation to restrict tuna imports harvested by methods exceeding US dolphin-kill limits.)

At the global level, trade provisions are increasingly part of international agreements to conserve global resources. Trade provisions are used in two ways: to enforce the agreements via the threat of trade sanctions; and to set environmental conditions on traded end-products or the production processes which generated them. (Agreements which utilise such provisions include the Montreal Protocol on Ozone Depleting Substances; the Wellington Convention on Driftnet Fishing; and the Convention on International Trade in Endangered Species.)

Ecologically sustainable trade depends on sustainable national production and consumption systems. Nations can and must take unilateral steps to create such systems. However, the scope for national environmental policies is circumscribed by global economic and ecological interdependence, as well as by the rules governing world trade. Achieving sustainable global trading patterns requires changes in global trading rules.

This article presents an approach to incorporating environmental conditionality on trade within the context of a global liberal trading system. It suggests that "free trade" can be beneficial to the environment as long as it is properly regulated. Part I analyses the environmental benefits of trade openness and the rationale for environmental regulation of markets. Part II explores ways to incorporate environmental conditionality into trade rules at the GATT. It also considers the potential for trade-environment cooperation within the Asia-Pacific region. The conclusion suggests a further research agenda.

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"FREE TRADE" AND MARKET REGULATION

A new trade-environment agenda is emerging in global diplomacy. The "old" agenda, which grew out of the Stockholm Conference in the early 1970s, focused on the international competitive effects of environmental controls, environmental product standards as non-tariff trade barriers, and controls on trade in hazardous products and wastes (ESCAP/UNDP 1991).

The new agenda embraces a wider set of issues, including:

- (1) the environmental costs and benefits of trade liberalisation;
- (2) means to incorporate environmental costs and limits into the prices and quantities of traded goods;
- (3) the use of new instruments of environmental regulation, especially production and processing measures;
- (4) changes in the rules governing trade to promote environmental investment and ecologically sustainable development more generally;
- (5) the use of national trade measures to close perceived gaps in environmental standards between trading partners;
- (6) the potential abuse of environmental conditionality on trade to promote economic protectionism, especially against exports of developing countries; and
- (7) the role of environmental conditionality within bilateral or regional trade agreements.

This section explores the first three issues. The remainder are considered in the next part.

Environmental benefits of trade openness

The starting point in analysing links between trade and environment is whether free trade is compatible with the sustainable use of global and national resources. Environmentalists are split on the issue. Some argue that free trade is "the great destroyer" of the environment and community interests are better served by economic nationalism. They argue for policies of "green protectionism" which "reduce free trade and bolster regional self-reliance" (Morris 1990; Daly and Cobb 1989; Hines 1990).

Other environmental groups argue that environmental degradation does not stem from trade per se but from the lack of environmental conditionality on trade. A coalition of environment groups in Mexico, the United States, and Canada, for example, is working to include environmental regulation within the trilateral North America North Free Agreement. "We believe the Agreement, *properly struc-*

tured, could significantly promote sustainable development through the North American community," concluded the National Wildlife Federation (emphasis in original) (Hudson 1991).

Unregulated "free trade" can have both negative and positive impacts on the environment. On the negative side, trade expands the level of resource consumption by increasing the optimal scale of production. Trade also absorbs resources, especially fossil fuels, in the transport of goods. Within Australia, the transport sector accounts for about 40 per cent of final energy consumption and accounts for about 26 per cent of greenhouse gas emissions. The transport of oil, chemicals and other toxic and hazardous materials poses particular hazards to oceanic and terrestrial eco-systems.

On the positive side, trade promotes sustainable development by increasing the efficiency of resource use. Free flows of goods, services, money, technology, information and people allow resources to be allocated to least cost/highest return production activities across a larger geographical area. An expansion of geographical scope makes it likely that resource requirements per unit output can be reduced.

Trade openness promotes competition, encouraging technological innovation and diffusion, with potential ecological benefits. A recent World Bank study found, for example, that in the 1980s countries with relatively open economies adopted new, cleaner wood pulp production technologies much faster than those with relatively closed economies. The study concluded that openness was "unambiguously environment-saving" and that "for pulp production at least, the environment gets a significant 'free ride' from openness even in an economy with no explicit environmental regulation" (Wheeler and Martin 1991).

Another benefit of trade openness is that it expands the range of production and consumption options beyond those available within one nation. By expanding the size of markets, trade allows the capture of economies of scale, increasing the efficiency of resource use. Increases in productive efficiency may partially or totally offset the resource requirements for transport.

Regulated free trade and sustainable development

Environment-friendly technological diffusion and increases in productive and allocative efficiency are fundamental components of ecologically sustainable development. However, trade promotes efficiency only if all costs are included in the prices of traded goods. When ecological (and social) externalities are excluded, markets fail to allocate productive resources efficiently and market prices fall below social costs of production. For trade to serve environmental objectives, prices must incorporate the full social costs — including environmental costs — of production. Full-cost pricing can be accomplished through instruments such as pollution taxes, tradeable emission permits, emission standards, and other forms of market regulation.

Full-cost pricing makes resource allocation more efficient and encourages the production and consumption of relatively more environmentally benign goods and services.

Furthermore, global economic interdependence means that environmental regulation in one country or group of countries which aims toward full-cost pricing can have positive environmental impacts on other countries. Technological innovation in wood pulp production, for example, was driven by strict environmental regulation in the OECD countries. "Clean technology is a complement to regulation, not a substitute," the World Bank study concluded (Wheeler and Martin 1991). Developing countries received the benefits of its diffusion. The study showed not that trade openness per se is environment-friendly but that the beneficial effects of environmental regulation can be transmitted through trade.

Environment-friendly technological diffusion and increases in productive and allocative efficiency are fundamental components of ecologically sustainable development. However, trade promotes efficiency only if all costs are included in the prices of traded goods. When ecological (and social) externalities are excluded, markets fail to allocate productive resources efficiently and market prices fall below social costs of production.

Internalising environmental costs into market prices can be accomplished most literally in relation to local externalities. The actual costs of cleaning up local air, water, or land pollution can be estimated and incorporated in market prices. When externalities pervade many eco-systems, however, or when environmental outcomes and therefore costs are highly uncertain, estimates of environmental costs are not meaningful. Examples include greenhouse-induced climate change and the loss of bio-diversity. Market-based instruments such as carbon taxes may be helpful in promoting sustainable management of the atmosphere. However, the level of the tax is not meaningfully based on the actual cost of externalities but on changing market behaviour to meet politically or scientifically determined targets. In this sense, full-cost pricing can be considered as a metaphor rather than an estimate of actual dollar value of cost.

Changing relative prices through full-cost pricing techniques is a crucial aspect of the environmental regulation of markets. Full-cost pricing techniques make resource use more efficient. However, they are not sufficient. Besides prices, regulation must also target the absolute quantity of resources used. This is because there are absolute ecological limits to the stress eco-systems can bear. Beyond a threshold point, an eco-system will lose the capacity to regenerate. Land, water, air, and atmosphere, for example, have limited capacities to serve as waste sinks. Resource over-exploitation leads to loss of regenerative and evolutionary capacities. Examples include desertification, depletion of marine resources, destruction of the ozone layer, and rapid loss of species. In most cases, there is only dim scientific understanding of where irreversible threshold points lie.

To ensure that irreversibilities are avoided, human use of environmental resources must remain within ecological limits. Price mechanisms which improve allocative efficiency alone will not ensure sustainable resource use. In a well-known metaphor, Herman Daly likens the price mechanism to the optimal distribution of cargo on a boat. Price is an allocative mechanism which "sees no reason not to keep adding weight and distributing it equally until the optimally loaded boat sinks, optimally" (Daly 1984).

Instruments to set limits on resource use include tradeable emission permits, which put ceilings on the absolute level of emissions allowed; quotas for the harvesting of renewable resources; and production and processing standards, which set conditions on how products can be produced or harvested.

Some of the most innovative and important tools for environmental conditionality are process standards, also called production and processing measures (PPMs). These measures set environmental standards not for end-products, the traditional method of regulation, but for production methods. The Convention on International Trade in Endangered Species pioneered the concept by limiting trade in listed flora and fauna to those harvested under certified sustainable management plans.

Applied to forestry or agriculture, PPMs would set conditions on resource management which met environmental objectives such as the conservation of bio-diversity and land productivity. In manufacturing, PPMs would set limits on or ban the use of environmentally degrading production inputs. The Montreal Protocol on Ozone Depleting Substances, for example, considered banning not only products containing CFCs (product standards) but also products made using CFCs in production processes (process standards).

TRADE RULES AND SUSTAINABLE DEVELOPMENT

Sustainable trading patterns are the outcome of sustainable national production and consumption systems. If all nations regulated domestic markets to utilise all their resource inputs — both national and global — in an ecologically wise manner, there would be no need for specific regulation of trade.

There are three grounds, however, on which national environmental regulation of markets is inadequate to the task of promoting sustainable development. First, crucial ecological resources are not contained within national boundaries. All nations share global resources such as the atmosphere, oceans, ozone layer, and biodiversity. Moreover, nations often share bodies of water and air streams with neighbouring countries. Since there are costs to sustainable resource use, each nation has an incentive to "free ride" on the ecological commitments of others, and to dump its pollution on others. As a result, the global or regional resource is degraded and everyone suffers. In classical prisoner's dilemma style, the payoffs to each nation can be maximised only through cooperation to establish a global regulatory framework.

Second, nations adopt diverse approaches to environmental regulation, reflecting different ecological, political, eco-

nomical and social conditions. There are differences in the kinds of regulatory requirements, as well as the implementation of environmental regulation, both within specific sectors and between national economies as a whole.

National policy differences create the potential for both trade conflict and the undermining of national environmental commitments. Canada and the United States, for example, are at loggerheads over US regulations banning asbestos. Even though the regulations were adopted after 10 years of public hearings, Canada charged that a ban of its asbestos exports to the US represents an unfair trade barrier. Within the context of the US-Canada Free Trade Agreement, there are no guidelines for the justifiability of regulations which supersede economic impacts, and no clear procedures for resolving environmental disputes (Shrybman 1991). Environmental provisions within the Agreement would have both promoted environmental objectives and reduced conflict.

Moreover, domestic environmental policies affect trade performance. The embrace of relatively stringent environmental standards could reduce trade competitiveness if other nations do not follow suit. (On the other hand, failure to keep pace with the environmental demands of trading partners could also undermine competitiveness.)

Trade pressures may undermine domestic environmental commitments, pushing nations to a low environmental common denominator. Alternatively, attempts to protect both domestic environmental standards and trade could generate trade conflicts and promote economic protectionism. A global regulatory framework is needed to help nations move together toward sustainable development; and to provide a framework to delineate the proper, that is, non-protectionist, use of environmental conditionality.

Third, global trading rules set broad parameters for national environment policies by sanctioning or prohibiting the use of trade-impacting policy instruments. Currently, GATT does not allow the application of production and process measures. Incentives for environmental investment, including in new technology, reforestation, land rehabilitation, etc., form a "grey area" and are often considered unfair subsidies. Global trading rules would establish a framework for acceptable national environmental policy instruments.

The need to focus on trade has given rise to two kinds of policy response. On one side are unilateral initiatives by nations to restrict imports or exports on environmental grounds. On the other side are attempts to change global (or regional) rules governing trade, either to enhance the scope for national environment-trade measures or to create a macro-regulatory framework.

The primary vehicle governing world trade is the General Agreement on Tariffs and Trade (GATT). Attempts to change global trading rules necessarily focus on GATT. (Other arenas in which trade-environment approaches are being considered are the OECD's Trade and Environment Committee and sector-specific organisations such as the International Tropical Timber Organisation.)

Given the tensions generated by the lack of guidelines for national trade measures, GATT will need to proceed on both fronts: to clarify the scope for national trade-impacting

environmental measures; and to develop global trade rules which take the environment into account.

The agenda at GATT

GATT does not contain explicit provisions or guidelines for individual nations to impose environmental conditionality. Nor is there a mandate for them to do so. Moreover, some of GATT's provisions, such as those forbidding the use of PPMs, are not environment-friendly.

At minimum, GATT should not impede national and global progress toward sustainable development. At maximum, GATT should actively promote it. An agenda for an environment-friendly GATT includes two kinds of initiatives: those which improve the *process* of setting environmental conditionality; and those which change the structural *provisions* which shape it.

The process of setting environmental conditionality would be improved through three initiatives. First, GATT should open its deliberations to non-governmental organisations (NGOs). These organisations often have or can marshal significant scientific expertise and represent a "voice of conscience". NGOs should be part of national delegations in working groups and committees dealing with trade and environment issues. To enhance communication with a wider public, GATT should abandon its propensity to be secretive and establish an NGO Liaison Unit.

Second, all trade agreements should be subject to environmental review and modification. This includes potential agreements on intellectual property protection, services, agricultural trade liberalisation, etc.

Third, GATT should develop criteria for the justifiability of trade-impacting environmental policies at the national and international levels. Without specified criteria, there is a danger that environmental conditionality will be used as a covert form of economic protectionism. Moreover, explicit environmental criteria would help to guide dispute resolution procedures, which currently focus only on whether a trade measure violated GATT's existing principles and provisions. Criteria might include environmental purpose; effectiveness in achieving environmental purpose; minimum trade impact in achieving environmental purpose; and transparency.

Changes in GATT provisions to incorporate environmental conditionality are required in at least four dimensions:

- (1) to allow the use of environment process and production measures;
- (2) to allow incentives and subsidies for environmental investment;
- (3) to ensure that GATT provisions do not conflict with or supersede trade provisions within international environmental agreements; and
- (4) to develop global minimum environmental product and process standards.

The importance of PPMs has already been argued above. An important issue for GATT will be whether to allow PPMs to be used separately by individual nations or only

in the context of international resource management agreements.

Global minimum standards would aim to prevent nations from using "environment subsidies", that is, the degradation of local environments, to enhance trade competitiveness. Minimum standards would allow nations to set their own standards above but not below the global standards. Flexibility is important because nations differ in the level of their ecological resilience, as well as their social valuations of the environment. Harmonised uniform global standards, such as those proposed by the United States in relation to food, lock standards into a hard-to-change, lowest common denominator. Minimum standards allow nations to maintain sovereignty over standards while accepting a global floor.

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GATT has two provisions which relate broadly to environmental concerns. Article XX(g) allows trade restrictions to conserve exhaustible natural resources, provided that domestic production and/or consumption is also restricted. Article XX(b) allows restrictions to protect human, animal or plant life. One suggested change is to allow trade restrictions "if such measures constitute an integral part of a sustainable management plan." Another approach might be to insert "the environment" into the second clause (Arden-Clarke 1991).

Changes to incorporate the environment are not fundamentally incompatible with GATT. The liberal, multilateral trading regime established by GATT is based on three principles:

- (1) *national treatment*: national policies should not discriminate between domestic and foreign producers;
- (2) *non-discrimination* (Most Favoured Nation): national policies should not discriminate among trading partners; and
- (3) *transparency*: trade barriers and regulatory requirements should be apparent.

Environmental conditionality can sit quite comfortably on these foundations. Environmental regulation should not be used to favour domestic over foreign producers, nor to further national foreign policy objectives for three reasons. First, there are environmental benefits to regulated "free trade". Second, beggar-thy-neighbour trade-environment policies will promote a climate of global hostility, undermining the prospects for world peace and global cooperation on other environmental issues. Third, constricting

market access to developing countries reduces their options for sustainable development.

The trade-environment debate — like most global environmental issues — is split across a North-South divide. Developing countries are concerned that rising environmental standards in the North are a new form of economic protectionism. They point to existing barriers to developing country exports, especially the Multi-Fibre Agreement, agricultural protection, and OECD policies of escalating tariffs on developing country manufactured imports. Given the importance of providing opportunities for sustainable industrialisation in the South, trade liberalisation is part and parcel of the trade-environment agenda.

Generating sustainable consumption patterns is part of a commitment to sustainable development. Product and process standards for imports, along with packaging and labelling requirements, can create pressure on trading partners to increase their environmental commitments. Such standards would help to eliminate “environmental dumping”, that is trade advantages gained through environmental subsidies which generate market prices below the social costs of production.

Technology transfer is crucial for developing countries to meet higher environmental standards. The transfer of environmentally clean technologies can be promoted by the transfer of financial resources through aid programs, international offset programs (for example, carbon taxes), and debt forgiveness. Trade and investment agreements also play a role.

Negotiations are currently underway at GATT to strengthen the protection of intellectual property rights (Trade-Related Intellectual Property Rights or TRIPs). Developing countries worry that greater protection will increase the cost of technology transfer and retard industrialisation (Raghavan 1990). Given the crucial importance of technology transfer, the initiative should be reviewed for its potential impacts on ecologically sustainable development at the global level.

In October 1991, GATT members agreed to convene a Trade and Environment Working Group. Originally established in 1971, the Group was never convened. The Working Group's agenda to date has three items:

- (1) the relationship of trade provisions within multilateral environmental agreements to GATT provisions and principles;
- (2) the trade effects of new packaging and labelling requirements aimed at protecting the environment; and
- (3) the transparency of trade-impacting environmental regulations. Membership is open-ended and Australia has indicated that it would be an active member. Adminis-

trative issues will absorb at least the first meeting. Substantive work should get underway in mid-1992.

National trade measures

Environmental conditionality can be pursued broadly in two ways: by creating a global (or regional) environmental regulatory framework; and/or by undertaking national trade-impacting measures. The two key policy issues are whether and when global versus national measures are appropriate; and which national measures are optimal.

An important criterion in determining whether a global (plurilateral) or national approach is better, is its likely effectiveness in achieving an environmental outcome. A good case study is US legislation to protect dolphins killed in the process of harvesting tuna. In 1988, the US Congress passed an amendment to the *Marine Mammal Protection Act* which set dolphin-kill limits on imported tuna at 1.25 times the average US kill. With a technologically less sophisticated fishing fleet, Mexico faced a virtual embargo in its largest tuna export market. Mexico filed a complaint at GATT, charging that the US legislation was a non-tariff trade barrier aimed more at protecting the US tuna industry than dolphins.

A GATT dispute resolution panel ruled in favour of Mexico, largely on grounds of extra-territoriality; that is, a nation does not have the right to extend its regulatory arm beyond its own jurisdiction. In effect, the panel's ruling suggests that the management of global commons such as fisheries should be managed through international agreement. Greenpeace International agrees, arguing that the protection of dolphins resides not in a US embargo but in “an international regime in which all governments, the fish processing and distribution industry, the purse seine fleets, and non-governmental environmental and consumer organisations work cooperatively to regulate the fishery and the intentional encirclement of dolphins” (Greenpeace International 1991).

In addition to environmental benefits, there are potential economic and political benefits in finding global approaches to environmental management. National measures typically do not make provisions for economic adjustment by trading partners and are not designed to optimise joint welfare, environmental as well as economic. In the long term, unilateral measures which provoke hostilities may undermine sustainable development by curtailing industry options in developing countries and/or the political will for global cooperation.

Nonetheless, there is significant scope for effective and politically sensitive national (or bilateral or regional) measures. National measures fall into three general categories:

- (1) policies to incorporate domestic environmental costs in the prices of locally produced exports;
- (2) trade-restricting measures to inhibit “environmental dumping” and eliminate trade advantages based on environmental subsidies; and
- (3) measures to promote environmental investment.

Nations have significant scope to create sustainable national production systems. Domestic process and product stand-

ards, environment taxes, emission regulations, and other instruments would internalise environmental costs into the export prices of goods produced domestically. For Australia, measures are especially important to ensure full-cost pricing in resource-based exports.

Generating sustainable consumption patterns is part of a commitment to sustainable development. Product and process standards for imports, along with packaging and labelling requirements, can create pressure on trading partners to increase their environmental commitments. Such standards would help to eliminate "environmental dumping", that is, trade advantages gained through environmental subsidies which generate market prices below the social costs of production.

Another approach to environmental dumping is the use of trade-restricting measures such as countervailing environment import tariffs or export subsidies. Theoretically, the tariff or subsidy would be equal to the difference between the social costs and the market price of the rival good. In practice, however, it would be hard to calculate the appropriate level of the tariff or subsidy, especially given different ecological resilience in different countries. There are currently no internationally accepted indicators of environmental health. The danger is that environment tariffs and export subsidies would be used as covert forms of economic protectionism, undermining the environmental agenda. (The debate over the desirability of tariffs, subsidies etc. on economic or social grounds is a separate issue. The important point is that environmental conditionality should be determined by environmental criteria and should not be a cover for protectionism. If protection is deemed socially desirable, measures should be transparent.)

National policies are important in providing incentives for environmental investment and payments for environmental services. Such measures are justified on the grounds that environmental investment generates positive social externalities. Investments by farmers in agro-forestry, for example, create benefits for all in the form of landscape amenity values and wildlife habitat. Tax incentives for land rehabilitation and investment in energy efficiency, as well as accelerated depreciation schedules, promote environmental investment.

Beyond their direct environmental impacts, national trade-environment measures have political impacts which help to shape the global trade-environment agenda. Given the impermeability of GATT to environmental NGOs, national measures typically offer the only political channel for groups to express ecological concerns. Greater opportunities for participation in global fora will help to promote a global perspective.

Given Australia's relatively small contribution to the production and consumption of most global resources, unilateral trade-restricting measures in general are likely to have insignificant environmental effects. Nonetheless, unilateral or bilateral diplomatic and aid initiatives can be effective in relation to particular trading partners where Australia is a large producer, consumer, or aid provider (for example, Papua New Guinea). Moreover, Australian diplomatic initiatives to promote environmental conditionality could be effective within the area of Australia's strongest trade relationships, Asia-Pacific.

Trade-environment cooperation in Asia-Pacific

Environmental conditionality on trade can usefully be implemented at regional as well as global levels. Geographical regions often share common resources, especially water and marine resources. Moreover, they have a high level of economic interdependence. In the Asia-Pacific region, intra-regional trade accounts for over 60 percent of total trade.

Economic and ecological interdependence suggests that two broad approaches to regional cooperation would be fruitful. First is cooperation in the management of regional resources, including marine, forest, tourism, and mineral resources. Regional sustainable management regimes would aim to promote policies such as full-cost pricing and resource exploitation limits.

The second approach is cooperation in setting regional trade-impacting environment policies, including product and process standards, labelling and packaging requirements, and other policies. Cooperation would promote both higher environmental commitments and greater — but ecologically sound — trade. It would aim to move towards regional harmonisation of approaches to environmental policy, reducing trade frictions stemming from a myriad of different regulatory frameworks.

There is also scope for cooperation to enhance the transfer of environmentally sound technologies to the developing countries of the region; and to increase the level of financial resources available for ecological restoration and environmentally sound industrial investments.

Regional trade-environment cooperation should be pursued within a number of existing regional and sub-regional organisations, including ASEAN, the South Pacific Forum, and the Asia Pacific Economic Cooperation (APEC) group. Organisations such as ASEAN and APEC in particular should consider subjecting trade agreements to environmental review and expanding their agendas to embrace environmental cooperation.

CONCLUSION

This article has argued that — properly constructed — environmental conditionality is not a violation of liberal trade rules but a legitimate form of social market regulation. Indeed, environmental regulation is required to make markets work more efficiently.

The article has also argued that changes in global trade rules are needed to make global markets serve the goal of sustainable economic development. Environmentally friendly trade rules would aim to develop a "virtuous circle" between the economic development benefits of liberal trade, the political benefits of international cooperation, and the environmental benefits of constraining trade within eco-system limits.

Such an agenda requires substantial amounts of further research aimed both at better understanding the links between trade and environment and at shaping appropriate policy responses to them. More research is needed:

- (1) to predict and document the environmental impacts of trade liberalisation, especially for agriculture and other resource-based trade;
- (2) to develop approaches to full-cost pricing, especially for resource-based traded products; and
- (3) to develop indicators of environmental health to help set appropriate environmental standards. Study is also needed to determine the technology and financial requirements of developing countries in meeting higher environmental standards, and in designing ways to supply these needs. Such research would be particularly useful in the Asia-Pacific region.

There is also need for research on the policy side, including potential synergies or contradictions between national trade measures and changes in global trading rules; how trade rules should be shaped to increase options for ecologically sustainable development in the South; and the elaboration of global trading rules such as global minimum environment standards.

The trade-environment agenda is new and evolving. It will take at least a decade for significant initiatives to be put in place at the global level. The direction of change, however, is clear and it is likely that momentum will increase as environmental degradation becomes more apparent.

REFERENCES

- Arden-Clarke, Charlie (1991). *The General Agreement on Tariffs and Trade, Environmental Protection and Sustainable Development*, World Wide Fund for Nature, Geneva, Discussion Paper, June.
- Daly, Herman (1984). "Alternative strategies for integrating economics and ecology," in A.M. Jansson, ed. *Integration of Economy and Ecology — An Outlook for the Eighties*, Stockholm: University of Stockholm Press, 19–29.
- Daly, Herman and John Cobb Jr. (1989). *For the Common Good: Redirecting the Economy Toward Community, the Environment, and a Sustainable Future*, Boston: Beacon Press.
- ESCAP/UNDP (1991). "Trade and Sustainable Development: Review and Analysis," Workshop on Economic Issues and Sustainable Development, Bombay, 16–20 September.
- Greenpeace International (1991). "The Greenpeace International Statement on the Current GATT Case Between Mexico and the United States," press release, undated.
- Hines, Colin (1990). "Green Protectionism, Halting the Four Horsemen of the Free Trade Apocalypse," London: Earth Resources Research Ltd., December.
- Hudson, Stewart (1991). Testimony on behalf of National Wildlife Federation before the Subcommittee on International Development Finance, Trade and Monetary Policy Committee on Banking, Finance and Urban Affairs, April 16.
- Morris, David (1990). "Free Trade: The Great Destroyer," *The Ecologist*, September/October.
- Raghavan, C. (1990). *Recolonization: GATT, the Uruguay Round and the Third World*, Penang: Third World Network.
- Shrybman, S. (1991). "Selling the Environment Short: An Environmental Assessment of the First Two Years of Free Trade Between Canada and the United States," Canadian Environmental Law Association, May.
- Smith, Michael (1991). Remarks to Symposium on International Trade and the Environment, World Bank, International Trade Division, November 21–22.
- Wheeler, David and Paul Martin (1991). "Prices, Policies, and International Diffusion of Clean Technology: The Case of Wood Pulp Production," Symposium on International Trade and the Environment, World Bank, International Trade Division, November 21–22, 26.



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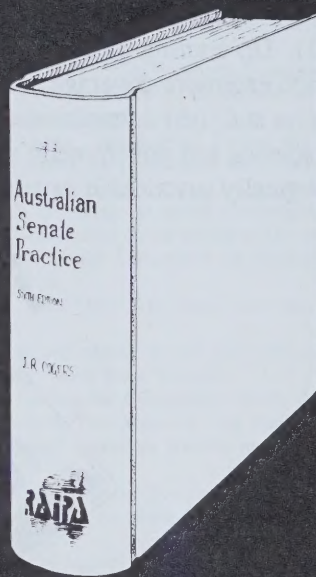
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